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THE JOURNAL OF NEUROLOGY AND PSYCHOPATHOLOGY

Vol. XV. APRIL, 1935 No. 60

Original Papers

THE 'DREAMY STATE' AS AN EPILEPTIC AURA, WITH REMARKS ON THE OCCURRENCE OF ELABORATE MENTAL STATES AT THE BEGINNING OF EPILEPTIC FITS

By

MAX LEVIN, Harrisburg, Pennsylvania

Hughlings Jackson, in his later years, paid much attention to a phenomenon occurring early in some epileptic fits and commonly known as an 'intellectual aura' or 'dreamy state.' Of these terms Jackson preferred the latter, since he thought the phenomenon was not a true aura. In this paper I shall try to show that it is, at least in some cases, an aura.

The reader will find a description of the dreamy state in several of Jackson's papers [1] and in Kinnier Wilson's paper,[2] and it need not be repeated here. Nor shall I outline Jackson's views on the nature of the epileptic seizure, save briefly to mention two points bearing on this discussion. According to Jackson the aura—the very first manifestation of the fit—occurs during, and is concomitant with, the epileptic discharge. The phenomena occurring after the discharge he divided into two groups: (1) negative symptoms, representing loss of activity of paralysed higher centres, and (2) positive symptoms, representing the activity of intact lower centres released from the control of higher centres. The importance of this distinction is best seen in the slightest seizures, which, as Jackson emphasized, are especially often followed by elaborate actions (positive symptom), occurring in association with some loss of consciousness (negative symptom).

Jackson's opinion of the nature of the dreamy state is expressed in the following passages. In 1876 he was reported (I, 274) * as follows: 'Dr. Hughlings Jackson thinks they (dreamy states) are not comparable to ordinary warnings; they are not, he thinks, the result of the epileptic discharge of the highest centre, but are owing to over-activity of next lower centres, as yet

* Bracketed figures refer to volume and page of the *Selected Writings of John Hughlings Jackson.*

untouched by the discharge.' He made similar statements in 1879 (I, 295, footnote), 1880 (I, 313), and 1888 (I, 386). On the other hand, in 1889 he made this important statement (I, 380, first footnote): 'In former papers I have spoken of what is known as the Intellectual Aura (I call it "dreamy state") as being the positive element in some cases of the first degree of post-epileptic states. . . . *I now feel uncertain as to the exact symptomatological nature of the "dreamy state"*' (italics mine). From the last sentence one might infer the possibility that Jackson was no longer certain that the dreamy state is a release phenomenon, but this inference is weakened by the fact that Dr. James Taylor, in presenting Jackson's views on the dreamy state in the Introduction to Volume I of the *Selected Writings* (p. xii), mentioned nothing to indicate that Jackson had changed his original opinion.

In endeavouring to establish that the dreamy state may occur during the epileptic discharge, I shall employ two bits of evidence: (1) in some cases the dreamy state occurs as the initial manifestation of severe fits; (2) in some cases it repeatedly occurs by itself for a considerable length of time before the appearance of the first severe fit. The data supporting these statements will now be cited.

Cases in which a Dreamy State is the Initial Manifestation of Severe Fits.—In the case of the patient 'Quaerens,' Jackson said (I, 390) that the patient had a dreamy state 'at the onset of his fits.' The patient X, whose case was studied by Ferrier and reported by Jackson (I, 398), described her fits as consisting of three distinct stages, the first being a dreamy state. In the case of M. W., the patient's severe fits 'began' (I, 398) with a dreamy state. (That there are some cases in which the dreamy state does not occur at the very beginning of the fit is indicated by the case of William B. (I, 397); in this case the fits began with vertigo; after this there was a peculiar taste; 'the next thing was his "dreamy state."')

Cases in which a Dreamy State Repeatedly Occurs Alone for a Considerable Time before the Appearance of the First Severe Fit.—That early in the history of some cases a dreamy state may repeatedly occur as an isolated phenomenon is evidenced by the following statement (I, 274): 'It is very common—indeed, he (Dr. Jackson) thinks it is the rule—for patients who have these so-called intellectual warnings to have slight abortive attacks stopping short at them—to have the so-called intellectual aura only. And here is a practical point—viz., that these "abortive" seizures are sometimes early in the case the sole ones.' This is borne out by at least four of Jackson's cases: the case of 'Quaerens' (I, 388), the case of H. (I, 389), the case of M. W. (I, 398), and the remarkable case of Z (I, 400 and 458). Kinnier Wilson's [2] Case 6 also falls in this category. Wilson's Case 4 may be mentioned: the patient had recurrent feelings of unreality, accompanied by olfactory sensations; while she had no epileptic fits, three near relatives were epileptic.

I submit that when a sensation in some cases occurs at the apparent beginning of severe fits, and when (in the same or in other cases) it repeatedly

occurs by itself for a considerable time before the appearance of the first severe fit, it cannot be regarded otherwise than as an aura. A comparison may in these respects be made with other auras, e.g. the common epigastric aura. Jackson said (I, 285) that patients 'will tell us that for months before they had any affection of consciousness preceded by an "epigastric sensation," they occasionally had that sensation alone, and thought little or nothing of it. . . . It is certain that these sensations may occur paroxysmally for months without anything further. The fact that such a paroxysmal sensation is often epileptic in nature is shown by the future of the cases: undoubted epileptic affections, attacks with convulsions and tongue-biting, come on, and each of these severe paroxysms is preceded by the sensation. What was once all is now the so-called warning of the severe fit. Strictly speaking, it was when it occurred alone a rudimentary or incipient fit of epilepsy; and when it becomes what we call a warning, since a severe fit follows, it is the inception of the severe fit.' The logic of the passage just quoted is impeccable. When a sensation repeatedly occurs alone for several months, after which it then begins to occur as the warning of severe fits, one is bound to conclude (1) that it occurs during discharge of the discharging lesion; (2) that this discharge is at first relatively slight, only after several months becoming severe enough to overcome the resistance of the lower centres, thereby causing a severe fit.

Jackson insisted that the dreamy state occurring alone should not too quickly be dismissed as hysterical. He said (I, 390): 'He who neglects the "dreamy state" because it is indefinite . . . may not even surmise that his patient has the serious disease epilepsy in a rudimentary form until a severe fit comes to tell him so. Even then it may be said that the slight paroxysm "developed into" epilepsy; but I insist that such slight paroxysms are themselves epileptic.' I contend that in these cases not only is the dreamy state epileptic, but, since it for a time constituted 'all of the fit,' it must have occurred *during* the epileptic discharge.

Why, then, did Jackson regard the dreamy state as a release phenomenon rather than an aura? The answer is best stated in the following passage (I, 313): 'They (dreamy states) cannot be owing to an epileptic discharge. It would be a remarkably well-directed and distributed epileptic discharge which would give rise to the exceedingly compound mental state of being somewhere else. Besides, it must not be forgotten that there very often is along with the dreamy state one of the crude subjective sensations mentioned (sensations of smell, etc.). It is scarcely likely that one thing, an epileptic discharge, should be the physical condition for a sudden stench in the nose—a crude sensation—and also the physical condition for an infinitely more elaborate psychical state.' In many other passages (e.g. I, 274, 295, 301, 386; II, 88) Jackson emphasized the elaborateness of the dreamy state, implying that this is an objection to the view that the dreamy state may occur as an aura.

In answer to this objection, I shall try to show that it really is not absurd

to suppose that, in some cases, concomitant with the epileptic discharge, there may be an *elaborate*, rather than the more usual *crude*, mental state.

First it will be necessary to consider what Jackson meant by 'elaborate' and 'crude.' Of Jackson's many statements on this point the following is the most explicit (I, 300):

'Let us give an example to show broadly the difference betwixt a crude sensation and an elaborate psychical state. Coloured vision—a crude sensation warning at the onset of some epileptic paroxysms—is sometimes quickly followed by "seeing faces." The mere statement declares the immense difference in elaborateness; the numerous different relations of sensations of colours, of extensions and distances, which make up the spectral image of a face, constitute a vastly more complex phenomenon than any development of colours and outlines attending an epileptic discharge. The most elaborate visual phenomena of some migrainous paroxysms—fortification outline, differently arranged colours, appearance of vibration, etc.—are far less elaborate than a spectral face. There is as much difference betwixt "balls of fire" and a spectral face as there is betwixt a house and heaps of material of that house when pulled down; or betwixt a series of elaborate musical chords and the noise made by playing the notes of those chords in a few seconds. But such elaborate phenomena as spectral faces are, it is supposed, *less* elaborate than those psychical states we have called "dreamy states," and sometimes spoken of as being voluminous. Thus, a spectral face is a much less complex psychical state than the feeling of "being somewhere else," or of imagining that a thing now seen was formerly seen under the very same circumstances.'

Jackson, then, regarded the seeing of the 'ball of fire' as a crude mental state, the spectral face as more elaborate, and the dreamy state as still more elaborate. His reasons for regarding the second as more elaborate than the first are explicitly stated; but I have nowhere found a statement of the reason why Jackson regarded the third as more elaborate than the second. This reason is, I think, obvious; perhaps its very obviousness is why Jackson never stated it (assuming it is true that he never stated it). At any rate, we shall have to infer the reason. I think it is the fact that the dreamy state consists of a *representation* rather than a *perception*. While seeing a ball of fire or a spectral face, the patient perceives something (in this connexion it matters not that the perceived object is 'imaginary'), whereas during a dreamy state he has a representation of something. No one will dispute the statement that representation stands higher in the evolutionary scale than perception.

In order to understand this matter correctly, I suggest that there are two kinds of elaborateness, one relating to the criterion of complexity and the other to that of representativeness. Thus, as between seeing a ball of fire and seeing a spectral face, the latter is held to be the more elaborate because, as pointed out by Jackson in the quotation cited, the face exceeds the

ball of fire in complexity of outline and detail ; both, however, are perceptions —in other words, as regards the criterion of representativeness, they are equally lacking in elaborateness. On the other hand, as between seeing a spectral face and having a dreamy state, the latter is held to be the more elaborate because it is a representative, while the former is only a perceptive, mental state. In this paper I am concerned with only the second kind of elaborateness.

Coming directly to the question of the occurrence of a representative mental state as an aura, one must consider the substrate correlative with the mental state in question. I refer to Jackson's important discussion of faint and vivid images. In a former paper [3] I considered Jackson's views on this matter at some length. Here I shall state his views only in the briefest way. Jackson (II, 69, 70) said that when one has a *vivid* image (e.g. when one sees a brick), there is strong excitation of certain parts of lowest, middle and highest centres ; when one has a *faint* image (e.g. when one merely *thinks* of a brick once seen), the excitation is weak and is confined to the highest centres. Now, since there are all degrees of intensity of an epileptic discharge, there is nothing incredible in the assumption that a faint image may occur as an epileptic aura. It is conceivable that in the substrate correlative with a given image a strong discharge will manifest itself as a vivid image, a weak discharge as a faint image. On this assumption, in the substrate correlative with the image of a ball of fire a strong discharge would cause one to ' *see* ' a ball of fire, while a weak discharge would cause one to have a *representation* thereof—one would, in other words, have the sensation one has when one thinks of, or remembers, a ball of fire.

The epileptic discharge being excessive, it might seem that any mental state concomitant therewith must of necessity be vivid rather than faint. This, I believe, does not follow. When it is said that the epileptic discharge is excessive, the implication is only that it is *relatively* excessive ; it need not be, though it may be, absolutely excessive. An illustration may make this clear. When I think of a brick, there is discharge of the substrate correlative with the faint image brick. This discharge may be normal or abnormal. It is normal if the image comes to my mind as the logical consequence of the train of thought with which I am at the moment occupied. (1) Suppose, while reading a book, I come across the word ' brick ' ; it is then natural and proper for me to think of a brick, and the discharge of the substrate is quite normal, *being due, not to pathological instability of the substrate, but to stimulation issuing from other functionally related substrates.* (2) Even if the idea of a brick comes to my mind ' out of a clear sky,' with no relevance to the preceding train of thought, the discharge may still be normal, provided the idea occurs in response to an ' unconscious ' train of ' thought.' In this case the substrate is discharged in response to other discharges which were not concomitant with (conscious) mental states. Here, as in the previous example, the discharge of the substrate ' brick ' is due, not to pathological instability of the

substrate, but to stimulation of it. (3) Now suppose a case in which the substrate is discharged, not in response to stimulation issuing from neighbouring substrates, but because of abnormal instability of some part of it. *Now, however faint be the discharge, it is excessive,* since the substrate, if it were healthy, would, at the moment in question, *be in a state of repose instead of discharge.* In this case, then, the discharge is not normal but epileptic. Assuming it to be of just the right degree of severity, the patient will have a faint image ' brick,' this image constituting a true aura. If the attack happens to be the first the patient has had, and if it stops short with the aura, the patient will not know he has had an epileptic attack ; all he will know is that for no apparent reason the idea of a brick suddenly popped into his mind. If later the occurrence is repeated over and over again, and if it is followed by loss of consciousness, etc., its epileptic nature will become evident.

I have seen one case in which the aura consisted of a faint image. An intelligent epileptic, studied at the Harrisburg State Hospital, said that at a previous stage of her disease she had had minor seizures, ushered in by a warning which she described thus : ' It was just as if I had seen a lot of garbage—the disgusting sensation that you'd get if you saw garbage. It was never as though I were actually *smelling* the garbage : it was just the sensation you'd have if you saw it without getting a whiff of it.' When one gets a whiff of garbage, one has a vivid olfactory image ; when one sees garbage but gets no whiff of it, one has a vivid visual image but only a faint olfactory image. The patient's aura consisted of precisely this faint olfactory image.

The conclusions are offered that (1) dreamy states are representative, or, in Jackson's terms, faint, mental states ; (2) representative mental states may occur *during* an epileptic discharge.

Attention may be called to an interesting point in the description of a dreamy state given by one of Jackson's patients, who said (I, 295) that while in this state ' I seem to think of a thousand different things all in a moment ' (Kinnier Wilson's ' panoramic memory ' type). This feeling would seem to be related to an ordinary reminiscence in the same way that a generalized spasm is related to an ordinary muscular contraction. Jackson regarded the epileptic convulsion as a ' contention ' (I, 431) of the patient's movements ; it is ' nothing more than a sudden excessive and temporary contention of very many of the patient's familiar normal movements—those of smiling, mastication, articulating, singing, manipulating, etc.' In another place (I, 355) he gave the following illustration : ' If there be a centre for locomotion, then during slight sequent discharge of its elements in health there is walking or running ; but if very many of those elements were to discharge, suddenly, rapidly, and excessively, the man walking or running would not go faster ; on the contrary, he would be stopped, would be stiffened up into a tetanus-like attitude by the *contemporaneous* development of many locomotor movements ' (italics in original). Similarly, in the case of the man who ' seemed to think

of a thousand different things all in a moment,' I would suggest that there was a 'contention' of faint images.

It is necessary to refer again to Jackson's statement (I, 313), cited above: 'It is scarcely likely that one thing, an epileptic discharge, should be the physical condition for a stench in the nose—a crude sensation—and also the physical condition for an infinitely more elaborate psychical state.' This, it seems to me, is by no means unlikely. There must be a tremendous amount of overlapping of the substrates correlative with the uncountable myriads of mental states which any person is capable of having, and it is not inconceivable that the substrate of a crude sensation may coincide in part with that of an elaborate state. In that case, discharge of those areas which the two substrates have in common, might, under proper conditions, manifest itself as simultaneously occurring crude and elaborate mental states. One may consider the analogy of a man who is father of a family, president of a bank and member of an amateur orchestra. In him the three rôles of father, banker and musician overlap. A single event—his death—will cause three simultaneous manifestations: a family will be deprived of their father, a bank of its president, and musicians of a fellow-player.

The main part of this paper ends here. I conclude with a consideration of the origin of certain utterances made by Z during his dreamy states. Z wrote (I, 401): 'I think that during the abnormal state I generally verbalize some such phrase of simple recognition as, "Oh yes—I see," "Of course—I remember," etc.' I submit that these utterances bear to the sensation of the dreamy state a relation identical with that which chewing and tasting movements bear to crude sensations of taste and smell.

Jackson's explanation of the chewing and tasting movements that frequently accompany gustatory and olfactory auras is that they occur *reflexly* in response to excitation of gustatory centres. He said (I, 303): 'I think it will be found that in many . . . cases the voluminous mental state occurs in patients who have at the onset of their seizures some "digestive" sensation—smell, epigastric sensations, taste, or, in cases where there are *movements implying excitation of centres for some such sensations*, such movements as mastication' (italics mine). Again (I, 385): 'Along with this voluminous mental state, there is frequently a "crude sensation" ("warning") of (*a*) smell or (*b*) taste; (or, when there is no taste, there may be movements, chewing, tasting, spitting, *implying* (?) an epileptic discharge beginning in some part of the gustatory centres) . . .' (italics in original). Speaking of Z, Jackson said (I, 458) that the tasting movements which occurred in some of his dreamy states 'were, I suppose, the *indirect* "*reflex*" results of an epileptic discharge beginning in gustatory elements of a certain region of the cerebral cortex' (italics mine). Jackson, then, regarded the chewing and tasting movements, not as a release phenomenon, but as the result of reflex excitation of centres closely related to the seat of the discharging lesion. I

would suggest that the same conclusion may be reached in regard to Z's utterances ('Of course—I remember,' etc.): they may be said to have occurred as the result of reflex excitation of centres closely related to those whose discharge was concomitant with the dreamy state. Speaking crudely, during the dreamy state the patient has a 'sensation of reminiscence'; this automatically leads to the uttering of such appropriate remarks as 'I remember.'

Z's utterances, then, should not be placed in the category of those automatic utterances that occur *after* slight epileptic seizures. Post-epileptic automatic utterances constitute a release phenomenon and are owing to activity of centres untouched by the discharge. Z's utterances, on the other hand, are owing to a slight 'secondary discharge' (I, 467) of motor centres closely bound up with those centres whose discharge is concomitant with the dreamy state.*

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[1] *Selected Writings of John Hughlings Jackson*, 1931–1932.

[2] WILSON, S. A. K., *Modern Problems in Neurology*, 1928. Chapter IV ('The Psychical Components of Temporal (Uncinate) Epilepsy').

[3] LEVIN, M., 'Hughlings Jackson's views on mentation: their value for the psychiatrist,' *Arch. Neurol. and Psychiat.*, 1933, **30**, 848.

* In this sentence I purposely speak of a *slight* secondary discharge. A *severe* discharge would manifest itself, not in harmonious movements of articulatory muscles, but in a 'contention' of movements; there would be convulsive movements, not utterances.

THE 'FROG' CHILD: A CONGENITAL LESION OF THE CORPUS STRIATUM?

By

R. G. GORDON, BATH

OUT of 1,296 patients admitted to the Bath and Wessex Orthopædic Hospital since its opening in 1926, four cases have come under observation which resemble each other, but which do not resemble any other cases admitted. So far as I can ascertain they do not exactly correspond to any clinical entity hitherto described in the literature, except for one case recorded by Fritsch [1] of Breslau and quoted by Batten [2] as a case of intrauterine poliomyelitis, though our present knowledge of this disease forbids us to accept the possibility of such a diagnosis. Fritsch describes the child in his case as having been born without injury through a breech presentation. The child had paralysis of both upper and lower extremities. There was a complete atrophic paralysis of both arms with loss of electrical excitability, while the legs were abducted to the fullest extent at the hips, and flexed at an acute angle at the knee so that the clubbed feet lay opposed to one another (cf. fig. 9). The muscles of the legs were not atrophic and responded normally to electricity. Batten remarks that the spasticity of the legs makes it unlikely that the diagnosis of poliomyelitis can be upheld.

Owing to the posture taken up by these children, which is similar to that of Fritsch's case, the Staff of the hospital has been accustomed to refer to them as 'Frog' babies, and they have been referred to under this term in a previous publication.[3] This posture, which is the characteristic feature of the condition, consists in flexion and eversion of the limbs, more particularly the lower, maintained by a plastic rigidity of certain muscles similar to that of Parkinson's disease when this condition occurs without tremor (fig. 2).

PERSONAL CASES

The clinical notes of the four cases are as follows :—

Case I.—A.G. Male, born on March 12, 1925. Admitted to hospital on July 31, 1926, with a diagnosis of 'Contraction of knees in flexion and hips in flexion with external rotation ; ? cause ; also ? congenital absence of the patella.'

Family History.—Parents, three brothers and one sister alive and well. No prenatal injury or disease. Parturition normal, though labour was somewhat prolonged.

Previous Illness.—Double pneumonia, winter 1925.

Abnormality (curious posture of legs) was noticed from birth. This has not altered appreciably since. Before admission had prolonged massage and plasters

were applied to feet. The feet were improved but the hips and knees remained in statu quo.

State on Admission.—Certain rickety signs were present, viz. bulging forehead, wide fontanelle and slight Harrison's sulcus. The legs were in the posture described above (fig. 1).

Bones.—X-ray films showed bones to be normal with no rickety signs except that the upper ends of the shafts of the femora were rather expanded, with an S-shaped curve.

Joints.—The hips were held somewhat rigidly in flexion and external rotation and the knees in flexion; the right knee could only be extended to 135°. The right subastragaloid joint was in valgus. The left foot at first was in equinovarus but by the time of admission was almost normal.

Muscles.—The right quadriceps was very weak and the patella was at first

FIG. 1.—Case I. Shows posture of lower limbs.

thought to be absent, but later was found some distance above the knee joint. Both hip adductors were very weak. The invertors of the right foot were weak, but the opposing muscles were in a condition of plastic rigidity similar to that seen in striate lesions, and quite unlike anything hitherto observed in an ordinary case of rickets. This accounted for the peculiar frog-like attitude. The child was quite unable to walk or stand. There seemed to be no abnormality of the upper limbs or trunk at this time except for the aforementioned Harrison's sulcus.

Progress.—On August 17 the child was put on a Jones' frame with the right leg flexed, but with extension applied. By September 3 the right knee and hip could be straightened, but they returned to flexion when released. The left limb was by this time straight. On September 17 some limitation of extension of the elbow joint was noticed with muscular rigidity of muscles similar to that in the legs. On October 11 plasters were applied to try to correct the abnormal posture of the right leg and this treatment was continued with reapplications from time to time till February, 1927. In this month a piece of quadriceps muscle (which was rigid) was excised for examination and was found to be normal. A piece from the wasted biceps (which was weak and flaccid) was mostly fat and fibrous tissue. This muscle did not respond to the faradic current at the level at which the tissue was removed, although the whole

musele did show some contraction. Manipulation was done while the child was under the anæsthetic, but no marked effect was obtained.

Later the boy suffered from whooping-cough and after recovery was fitted with a right calliper and at the end of June 1927 was also supplied with a left calliper and discharged home able to walk in these.

In spite of reasonably constant wearing of the apparatus, by May 1933 the condition of the right leg had relapsed to a considerable extent into its old ' frog ' posture.

Condition on readmission, May 29, 1933.—The right hip cannot be extended beyond 160° and cannot be internally rotated beyond the neutral position ; all other movements are free. The left hip does not rotate internally beyond neutral, otherwise has full range. The right knee is contracted in flexion at about 140° ; it has full active flexion. The right patella lies 3 in. above the line of the knee-joint. The right quadriceps will not keep knee even at full passive extension. The left knee extends and flexes completely. The right ankle is in slight equinus which can be overcome when knee is flexed. The left ankle comes just to a right angle. The right leg has ¾ in. shortening, probably due to flexion of knee and hip. The right calf has ¾ in. wasting ; the right thigh 1½ in., 4 in. above knee. There is no fixed scoliosis. The child sits with winged scapulæ, but this is not due to serratus weakness : rhomboids are fair. There is slight pigeon breast and Harrison's sulcus. The patient is nearly nine, but is only about the size of a child of six. He is of reasonably good intelligence. He walks with a tilt of the body to the right. The right foot is in extreme valgus, the right knee pointing out ; hip and knee are flexed. The left lower limb is now used in normal position except that the foot is in valgus. The right boot is badly worn down on its inner edge ; the left has been thickened on its outer edge.

Traction and extension of the limb did not improve matters and tendon division by open operation was done. This gave a better result, but did not entirely correct the deformity. In September 1933 the child was discharged home with instructions to wear callipers by day.

Case II.—T.G. Male, born on June 12, 1925. Admitted on June 1, 1929, with a diagnosis of ' Frog ' child.

Family History.—Father healthy. Mother has a goitre, but otherwise healthy. One brother ' delicate.'

Birth.—Labour was induced at eight months owing to narrowness of the maternal pelvis and because the mother was suffering from œdema.

Previous Illnesses.—Measles, chickenpox and pneumonia twice.

The abnormality was not noticed until the child ought to have begun to walk. He had always been weak but could not walk because of tightness of heels and flexion of knees and eversion of the hips. On admission at four years old he had not walked, but tried to shuffle about sitting on a chair. When he was two years old some ' spasm ' of the fists was noticed by the mother. On admission he could feed himself clumsily ; he could not write, but scribbled with his right hand.

State on Admission.—The skull was peculiar ; there was marked asymmetry of the right frontal bone, while the left frontal was flattened ; the left occipital bone was prominent as if the whole head had been squeezed obliquely. The chest was somewhat funnel-shaped with a definite Harrison's sulcus. The fingers were slender. The spine was flaccid. The limbs were held in the posture of a squatting frog apparently by the peculiar postural tone of the muscles which showed a plastic rigidity suggestive of that met with in striate lesions.

X-ray films did not show rickety changes in bones ; the epiphyses were normal.

Treatment by splinting, traction, and exercises in hot water met with only very partial success. Delay was caused by streptococcal infection of the throat ; the child was always feeble and subject to infection. Later he was given a plaster bed and plasters were applied to his feet with some improvement. He later contracted whooping-

cough and returned home after recovery, but subsequently developed pneumonia and died. No autopsy was permitted.

Case III.—M.N. Female, born on September 23, 1930. Admitted on April 16, 1932, with a diagnosis of ' ? Frog ' child.

Family History.—Parents healthy. One twin brother and three sisters healthy.

Birth.—Normal.

Previous Illnesses.—Asthmatic attacks since birth.

The disability was noticed when the child was 17 months old and thought to be bow legs. She had been able to ' walk ' round holding on to chairs since the age of six months, but she could not yet walk unsupported.

State on Admission.—Head, chest and spine were normal. Upper limbs were normal except for a little thickening of the lower ends of the radii.

The hip joints showed a fixed external rotation which could only be overcome with difficulty. The knees showed fixed flexion at about 10° and the ankle joints

FIG. 2.—Case III. Before treatment.

FIG. 3.—Case III. After treatment.

slight calcaneus due to a plastic rigidity of the muscles reminiscent of that found in striate disease (fig. 2).

The only muscles actually weak were the glutei.

Bones.—The tibiæ showed a little outward bowing and the hip coxa vara, but no subluxation. The epiphyses of each head were slightly irregular, but not such as would suggest any marked degree of rickets. The knee-joints appeared normal, with no widening of the epiphyses.

The ' frog ' condition in this case was mild compared to the others, and as a result of plasters was much improved (fig. 3), but the rigidity was quite unlike that of an ordinary case of rickets. The child had difficulty in learning to walk, apparently preferring to go more sideways than forwards, although she eventually overcame this.

Case IV.—D.O. Male, born on March 21, 1924. Admitted on April 26, 1933, with diagnosis of ' ? Frog ' child.

Family History.—Parents and one brother healthy. One died at three weeks from ? imperforate anus. One sister healthy.

Birth was normal, except for difficulty in breathing, the cord being wound twice round the neck.

Previous Illnesses.—Measles, whooping-cough, chickenpox and pneumonia three times. Tonsillectomy performed when æt. 4. Tracheotomy after measles.

The disability was noticed from birth as a weakness of all the muscles. He has never walked, but has crawled on hands and knees since he was about three years old. At this time his case was diagnosed as one of amyotonia congenita, but when he came under our observation he showed definite plastic rigidity of the muscles. He had been at a school for physical defectives and was of good intelligence.

State on Admission.—I.Q. 120 per cent. Incontinent of urine and fæces. There were marked bony deformities. The skull was flattened from before backward; the face was flat and very wide opposite the angles of the lower jaw (fig. 8). The spine showed a long right thoracic scoliosis with much distortion of all the ribs which were prominent posteriorly on the right side (figs. 6 and 7). The chest was deep and funnel-shaped with much spreading of the ribs in front. There was some bowing of the upper third of each tibia. The os calcis was almost vertical and the cuboid had a spine on the dorsum. There was extreme plantar flexion of the big toes at the metatarsophalangeal joints and to a less extent of the other toes, which also overlapped one another (fig. 9).

FIG. 4.—Case IV. X-ray photograph showing normal bony structure and absence of congenital dislocation of the hips.

FIG. 5.—Case IV. X-ray photograph showing absence of rickety changes.

The tendon reflexes were not obtained. The posture lying down was with each hip in extreme external rotation and slight abduction. The knees were flexed at 160°. The feet were in equinus, the toes flexed with the outer border of each foot on the bed. This posture was maintained by plastic rigidity of the muscles.

X-ray films showed no characteristic rickety changes in the bones in spite of the marked deformity (figs. 4 and 5).

While the child was in hospital control of organic reflexes was established and by persevering with orthopædic measures he learnt to walk.

FIG. 6.—Case IV. Shows scoliosis.

FIG. 7.—Case IV. X-ray photograph of spine.

FIG. 8.—Case IV. Shows peculiar shape of skull and facial bones.

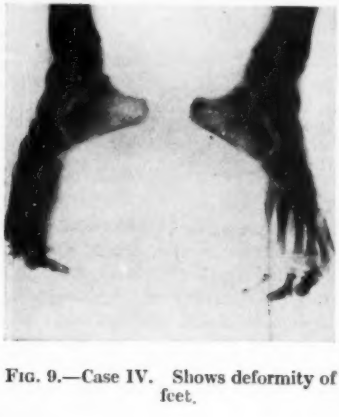

FIG. 9.—Case IV. Shows deformity of feet.

DISCUSSION

At first sight these four cases (three males and one female not related and with no history of a similar condition being noted in the family of any of them) might have been taken for somewhat unusual cases of rickets, and they undoubtedly presented certain features of this disease. The children were

all somewhat delicate in their physical constitution but of average or good intelligence. Of course, it is quite possible that the true diagnosis should be simply one of rickets, but against this they presented a characteristic posture of the limbs of flexion and external rotation which is not commonly met with as a rickety deformity. The X-ray films disclosed no epiphyseal irregularity, such as would have been expected had the extreme degree of deformity been due to rickety changes. No benefit was obtained even in the infantile case by administration of vitamin D and exposure to sunlight. Above all, the rigidity of the muscles was quite unlike anything seen in ordinary cases of rickets, in which the muscles are atonic and weak. Other gross bone and joint disease was excluded by the X-ray appearances.

The trouble therefore would appear to be in the neuromuscular apparatus and not in the bones or joints.

The condition does not in any sense resemble a diplegia or double hemiplegia since the posture is the reverse of the adducted extended limb familiar in these conditions, though it is not impossible that some hitherto undescribed cortical lesion might produce a condition the opposite to diplegia. However, as has been stated, the rigidity is plastic rather than spastic. There is no hyperkinesis such as is seen in Vogt's double athetosis or Wilson's disease, and the group of previously described lesions of the corpus striatum.

The condition of myodystrophia fœtalis deformans or arthrogryposis multiplex congenita must be considered, especially in connexion with Case IV, in which the feet might be reminiscent of this. They were not, however, clubbed, but in an exaggerated calcaneus position.

Stewart Middleton has recently given an excellent survey of this affection.[4] 'For nearly a century orthopædists have recognized a well-defined congenital deformity affecting both upper and/or lower extremities. The deformity is present at birth and consists of club-hands and club-feet without any bony aplasia to account for its presence. It is accompanied by more or less limitation of the normal range of movement at the joints of the affected limbs. The mobility of the joints may be only slightly curtailed or the limbs may be, in the more severe cases, almost fixed in any degree of flexion or extension.'

Where passive movement of the joints is possible, and this is by no means in every case, it is found that active movement is either absent or is greatly diminished by a muscular weakness which is explained by the observation that all the muscles involved are much wasted. There results a relative prominence of the joints which has given rise to the impression that the rigidity of the limbs is due to a primary articular lesion. Where the lower extremities are affected, congenital dislocation of the hip joints is frequently present and in the more common cases, where the knee joints are fixed in hyperextension, congenital dislocation of the knees with absence of the patellæ may result.

In the present series of cases the posture is different, for in myodystrophia

there is a tendency for hyperextension and the club hands and feet are characteristic, while in these 'frog' children the eversion and flexion of the hips is in no case associated with congenital dislocation of that joint.

The muscles are notably wasted in myodystrophia, but this was not the case in the present series except in the first. Again, the affected muscles which are responsible for the deformity show characteristic microscopic changes. They were found to be composed very largely of fat. Amongst the fat could be seen occasional oval cells with central nuclei. They were clearly muscular in type and might be interpreted as undeveloped muscle-cells in the myoblastic stage of differentiation, or as a remnant of degenerating or degenerated myocytes. In other muscles were found varying proportions of normal muscle fibres in a stroma of fat. As has been said already, in myodystrophia the wasted fibro-fatty muscles produce the deformity, whereas in the case described above the muscle causing the deformity was normal, while the opposing weak muscle was fibro-fatty. The conditions, therefore, seem not to be parallel. In myodystrophia the contracture is completely resistant, while in the 'frog' children a considerable improvement was obtained by persistent stretching and re-education.

It is suggested that these four cases represent a clinical entity which can best be explained by some congenital lesion of the corpus striatum or other part of the extrapyramidal arc, causing the characteristic plastic rigidity without hyperkinesis which produces a deformity of the limbs, more particularly of the lower, in a position of external rotation and flexion. The condition is associated, especially in Cases II and IV, with marked skeletal deformities not accompanied by characteristic bone or joint X-ray appearances. The distortion of the skull and spinal column in these two cases is not, however, accounted for, and the absence of post-mortem examination makes the whole presentation of these cases highly speculative and of uncertain value. It is possible that others who have met with similar cases may have been more fortunate in elucidating the cause of the condition and so be led to throw light on an obscure problem.

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BLOODVESSEL TUMOURS OF THE BRAIN WITH PARTICULAR REFERENCE TO THE LINDAU SYNDROME

By

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INTRODUCTION

Luschka, who in 1854 recorded the first cerebral angioma, distinguished two types: (1) those arising by sequestration of small portions of the embryonic capillary system, and (2) the true tumour formations arising from vascular tissue. Previous to Luschka's description, tumours of both types had been recognized elsewhere in the body, and because of their essentially cavernous nature had been named 'cavernous angiomas' by Rokitansky. Dandy, in a critical review of the venous abnormalities and angiomas of the brain, states that distinction between the two types is determined by the relative preponderance of connective tissue and vascular spaces, and concludes that there is little, if any, fundamental difference between them; as a result he prefers to adopt the old nomenclature of cavernous angioma.

The researches of Lindau have, however, firmly established the clinical and pathological individuality of that type of vascular tumour which seldom occurs in any part other than the hindbrain, and which may be associated with angiomatosis retinæ (von Hippel's disease), cystic disease of the pancreas and kidney, and rarely—in the fully developed form of the condition—with hypernephroma, tumours of the epididymis, and angiomatosis of the liver.

Since Lindau's original publication several workers, Cushing and Bailey in particular, have drawn attention to this group of cases, which because of their histological picture have been named 'hæmangioblastoma.' These are believed to be true neoplasms of the bloodvessel elements—in contradistinction to the angiomatous malformations, which (according to Cushing and Bailey and others) are, as their name indicates, probably malformations and not true tumours, and contain between their vascular loops traces of nervous tissue. Of these angiomatous malformations, the venous type tends to be associated with hæmangiomatous lesions of the skin, usually in the trigeminal distribution, as has been particularly stressed by Parkes Weber, Harvey Cushing and many more.

Both conditions, the angiomatous malformations and the hæmangioblastomas, arise from some developmental defect; Lindau has expressed the view that the associated lesions, to which his name has become attached, are due to a maldevelopment of the mesoderm in the third month of fœtal life.

It is remarkable that these two conditions—both due to some developmental defect in the cerebral vascular tissue—would appear to be so distinct. The angiomatous malformations are essentially benign, non-familial, unassociated with any visceral anomalies, occur most commonly in the cerebral hemispheres, apparently never give rise to cyst formation, and tend to be associated in the more common type—the venous form—with congenital nævi of the skin in the form of port-wine marks on the face. The hæmangioblastomas are true tumours, in some instances a familial history is obtainable, they occur almost entirely in the hindbrain, frequently give rise to cyst formation, are unaccompanied by any skin lesion and may be associated with visceral anomalies and angiomatosis retinæ (von Hippel's disease).

It is difficult in the present state of our knowledge to see why these two types of lesions should be so distinct. That the syndrome described by Lindau is well defined is shown by the constancy with which the recorded cases adhere to his original clinical and pathological description. Thus the occasional familial and hereditary tendency is well illustrated not only by some of Lindau's original cases, but also by the more recently recorded ones of Möller, Cushing and Bailey, Hartman, Collier and others. Since the publications of Lindau, the association of angiomatosis retinæ with the syndrome has been from time to time reported, by Cushing and Bailey, Möller, Rochat, Nicolato, Viegts, Atkinson and others. The site of election of the lesion in the cerebellum or medulla oblongata is such that Lindau believes that they do not occur elsewhere in the nervous system, apart from rare simultaneous involvement of the spinal cord; Cushing and Bailey state '. . . It can be seen that the list of true bloodvessel tumours in the cerebrum is an exceedingly meagre one. We have met with no example ourselves . . .' They are sceptical of the authenticity of recorded cases in which the lesion has been found above the level of the tentorium cerebelli. In 1931, however, Barnard and Walshe reported an undoubted case in which the lesion was found in the right temporal lobe; Rochat has also reported a similar case. Russell has described a unique case of spinal compression due to a capillary hæmangioma of the cervical cord associated with syringomyelia. The occurrence of cyst formation is frequent and well known, while its precipitation has been presumed to follow slight trauma, as was first emphasized by Sargent and Greenfield; it is probably the cyst formation and not the tumour nodule which more often initiates cerebral symptoms.

An extensive study of the literature has revealed only four instances of the occurrence of cutaneous hæmangiomatous lesions in the Lindau syndrome: one of Lindau's patients had a capillary angioma on the wrist; in the cases recorded by Aust and by Tschenzaw there was a small one on the forehead, while the patient of Fabritius had several small ones. This rarity of cutaneous lesion is remarkable when it is remembered that the nervous system is of ectodermal origin.

From the above considerations it would seem profitable to ascertain the

possible occurrence of cases which exhibit features common to the two conditions.

Concerning angiomatosis retinæ (von Hippel's disease), Lindau states that 25 per cent. of the cases develop cerebral symptoms: these without exception appear to be due to a hæmangioblastoma of cerebellum or medulla oblongata. Treacher Collins distinguished unusual tortuosity or abnormal branching of retinal vessels from that condition in which a large retinal vessel disappears into a raised angiomatous mass at the periphery of the fundus. Lindau showed that this latter group may be associated with similar vascular and cystic growths of the hindbrain: the former group is often associated with angiomatous formations in skin and mucous membrane, and sometimes with symptoms suggesting tumour formation of an angiomatous character, pressing on the cerebrum. Both venous capillary hypertrophy of the choroid and angioma of the ciliary bloodvessels and of the choroid have been described in association with cutaneous vascular lesions—usually of the face (Sturge, Horrocks, Parkes Weber, Paton and Treacher Collins). Parkes Weber and Cushing associate unilateral buphthalmos or congenital glaucoma with cutaneous and cerebral hæmangiomatosis, and retinal hæmangiomatosis with the Lindau syndrome. There appears to be no recorded case of angiomatosis retinæ in which a vascular lesion of the skin has been present; but of those cases in which it has formed part of an angiomatosis of the nervous system, Lindau, Aust and Tschenzow have each reported an instance in which a small cutaneous nævus has existed.

With reference to the visceral lesions which may be present, Russell distinguishes between the cavernous hæmangiomata—which usually occur above the tentorium cerebelli and in her seven cases were unassociated with cyst formation—and the true capillary hæmangiomata or hæmangioblastoma. In two cases of the former type, visceral lesions of the Lindau syndrome type were found in the form of cysts in the kidney and liver.

Thus it would seem possible, as further cases are recorded, that atypical features may be encountered which may indicate a possible association between the angiomatous malformations and the hæmangioblastomas.

For this reason it has been thought desirable to place on record one such case which, even though pathological investigation was denied, possessed several distinctive clinical features which rendered it unique.

PERSONAL CASE

D. C. C., a well-developed boy of 16 years, was admitted to hospital on August 25, 1934. There had been no other similar case in the family history.

History of Illness.—He was well until he slipped down the bottom two steps of a flight of stairs four years ago; he fell on his buttocks and did not strike his head. Apart from his feeling a little shaken, no ill effects were observed until the following day, when he felt unwell and sick and had a headache. Later in the day he vomited and thereafter he vomited daily, almost regularly after each meal. He also noticed that whenever he turned his eyes to the left without moving his head 'everything used to

move to the right ' without the occurrence of any diplopia. During the three months in which he stayed in bed he had frequent giddiness, and whenever he sat upright ' everything went black ' and he felt faint though he never lost consciousness.

He returned to school after an absence of six months : by this time the vomiting had ceased, but after a short interval it returned and thereafter he had regularly occurring morning vomiting.

In January 1934 he noticed that the left eye was moving from side to side when he looked to the left, and that he felt intensely giddy on looking vertically upwards or on attempting to lie flat in bed. At about this time he was examined by a competent ophthalmic surgeon and no papillœdema was found.

He wrote with his left hand until one year ago ; he then noticed a constant numb feeling in the tip of the left forefinger and a sense of cramp in the left middle finger, which resulted in the pen's slipping from his hand ; he thereafter took to writing with his right hand. For six months he had observed complete inability to recognize objects by touch with his left hand and had distrusted the hand in holding things.

For some considerable time he had held the neck stiff to avoid looking directly forwards or upwards. Slight numbness of the left toes had been present for two months. The only other incident of interest in the history is that two days after the initial onset of symptoms his motions were black.

State on Admission.—He was a bright intelligent boy, rather tall for his age, who carried his head rigidly inclined forwards and slightly extended, and even when lying in bed would not permit the cervical rigidity to relax. Over the front and back of the upper midthoracic region was a diffuse light purplish-coloured capillary nævus which extended into the anterior and posterior cervical regions and across the axillæ on to both upper arms. Here the lesion existed in the form of several small isolated areas, not extending below the elbows with the exception of a few tiny areas on the flexor aspect of the right forearm and over the extreme periphery of the palmar surface of the right thumb. Over both anterior deltoid regions could be seen several large subcutaneous veins, which had their origin in the palms of the hands, whence they could be traced upwards along the flexor aspect of each upper limb. In places the skin lesion was bright red ; there was also a small capillary nævus to the right of and above the umbilicus.

The *cranial nerves* were normal with the following exceptions. The fundi showed early bilateral papillœdema ; the edges of both optic discs were obscured and the veins engorged and tortuous in places ; these signs were more marked on the left side, where there was to be seen on the temporal margin of the optic disc a small, round, pinkish, non-pulsatile nodule, into which a large vessel—apparently an artery—entered and disappeared from view (fig. 1). This nodule appeared to be in the retina and had the appearance of an angioma. The pupils were dilated and apart from the right one being slightly the larger and reacting less well to direct light than the left were otherwise normal. There was a coarse, sustained, horizontal nystagmus with a rotary element on full left lateral conjugate deviation ; this nystagmus was more marked in the left eye. On full right lateral conjugate deviation there was visible a fine, quick and well-sustained nystagmus.

Examination of the *motor system* revealed the following abnormalities. At rest the left hand lay with the fingers slightly flexed into the palms ; the fingers were rarely still owing to the occurrence of involuntary movements of a faintly athetoid type. When the upper limbs were held outstretched the abnormal posture and involuntary movements of the left hand were well seen ; the hand assumed the posture characteristic of chorea with the fingers hyperextended and the hand pronated and slightly flexed. Both upper limbs were hypotonic, the left more markedly so ; there was a slight bilateral terminal tremor in the finger-nose test, also more obvious

on the left side where motor power was ill-sustained and a little impaired. Both lower limbs were hypotonic; apart from motor power being less well sustained on the left side where dorsiflexion of the foot was a little weak, there was no other abnormality.

All tendon-jerks were brisk—a little more so on the left side; the lower abdomina reflexes on both sides were not obtainable; the plantar responses were both flexor.

Sensory examination revealed complete position loss and astereognosis of the left hand; there was partial position loss of the toes of the left foot.

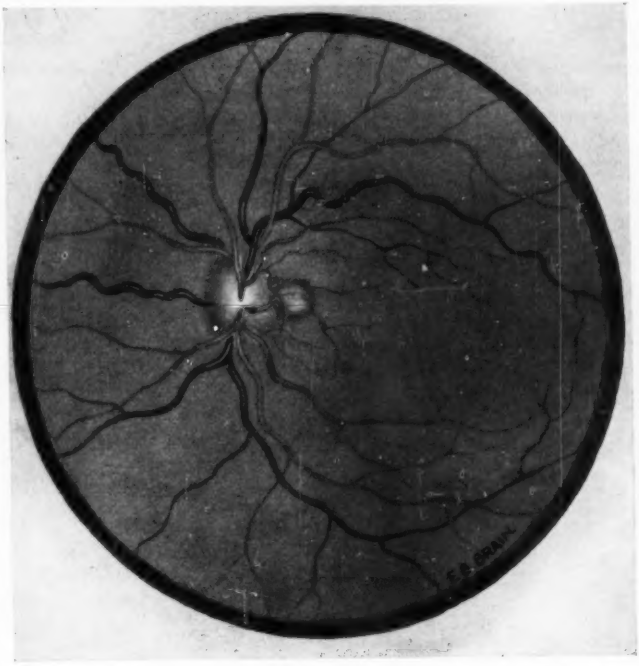


FIG. 1.

In walking the boy carried the head rigidly inclined forwards and the left limbs showed a bigger excursion of movement without there being any ataxia.

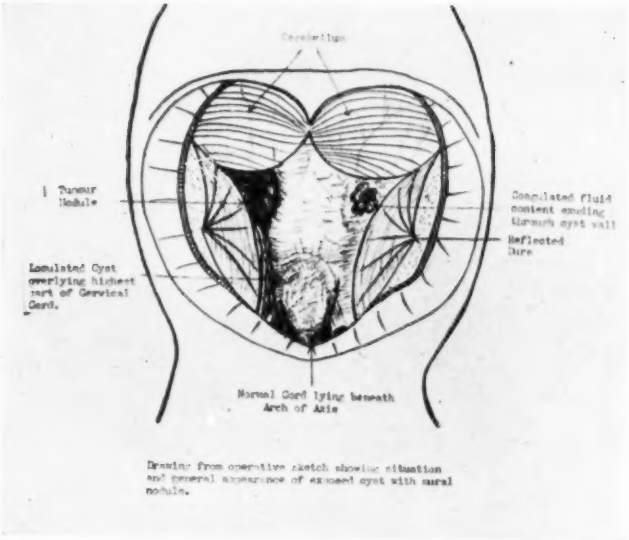
There was no bruit on auscultation of the skull, radiographic examination of which revealed evidence of increased intracranial tension with no other abnormality.

While the patient was under observation his condition remained unchanged apart from increase of the degree of papilloedema.

An analysis of his physical signs suggested that the gross position loss of the left hand was the cause of the astereognosis and that such sensory loss was not incompatible with an infratentorial lesion; this was considered the most likely situation of a lesion that could produce the symptoms of intermittent hydrocephalus of which his story was so suggestive. In addition his

sensory loss was apparently of late onset and therefore more likely to have no localizing value. It may be recalled that two of the cases reported by Cushing and Bailey had such sensory loss; Riddoch has also referred to one such similar case of his own. The lesion was thought to be situated either in the left cerebellar hemisphere or in the fourth ventricle, and in view of the vascular lesions present in retina and skin, the confident diagnosis of a bloodvessel tumour of the brain was made. Moreover, though skin lesions appear to be excessively rare in the Lindau syndrome, it was felt that the case in question was an instance of that condition.

Operation was undertaken by Mr. F. A. R. Stammers on October 17; a


Cerebellum
Tumour Nodule
Coagulated fluid content oozing through cyst wall
Reflected Dura
Loculated Cyst overlying highest part of Cervical Cord.
Normal Cord lying beneath Arch of Axis

Drawing from operative sketch showing situation and general appearance of exposed cyst with mural nodule.

FIG. 2.

subtentorial decompression was performed and the arches of the atlas and axis were removed. On reflexion of the dura mater a remarkably tensely distended multiloculated cyst overlying the medulla oblongata was found; this on needling yielded about 12 c.cm. of clear yellow fluid which underwent spontaneous coagulation. Examination of this fluid revealed a protein content of 1·3 per cent. On deflation of the cyst the anticipated tumour nodule was found; it lay between the left cerebellar hemisphere and the medulla oblongata and its lower pole was anchored by three large tortuous vessels which entered it after running vertically upwards alongside the medulla oblongata. The tumour was a lobulated mulberry-like mass of the size and shape indicated in the diagram (fig. 2). No attempt to remove the

tumour was made. It was decided to try to devascularize it by means of deep X-ray treatment, after which a second operation should be performed for its removal: the wound was accordingly closed. To our keen disappointment the boy developed a fatal pneumonia, of which he died on the fourth day following operation. It is greatly to be regretted that no post-mortem examination of any kind was possible.

COMMENT

It is of interest to note the initiation of symptoms following slight trauma and that the cyst was multiloculated and contained xanthochromic fluid—a frequent finding in the syndrome described by Lindau. Whether the black stools which the boy is said to have passed at the onset of symptoms indicates that he had true melæna, it is impossible to say; no record of any case reported in the literature has been found in which vascular lesions of the alimentary tract have been present. That he had some abdominal disturbance is suggested by the history that for several months in 1933 the upper part of the abdomen was very distended—so much so that he was treated for an enlarged liver and spleen, though as far as can be ascertained these viscera were at no time palpable.

The central position of the retinal angioma would appear to be quite unusual, as in both angiomatosis retinæ and in those cases of the Lindau syndrome in which a retinal lesion has been present, the angioma is almost always found at the extreme periphery of the fundus. Niccol and Foster Moore have recently described an example of the former condition in which the lesion adjoined and partly overlay the temporal edge of the papilla.

In spite of the absence of histological confirmation of the diagnosis, it is felt that this is sufficiently certain to enable one to record the case as one of the Lindau syndrome in which the presence of an extensive skin lesion was a remarkable feature.

SUMMARY

1. Bloodvessel tumours of the brain are briefly discussed and the chief features of the angiomatous malformations and the hæmangioblastomas are described and contrasted.

2. Attention is drawn to the occurrence of cases in which features common to both types of lesions occur.

3. A case is described which on clinical grounds is believed to belong to the group of cases described by Lindau. The existence of an extensive skin lesion rendered the case unique and is believed to indicate an association between the angiomatous malformations and the true bloodvessel tumours of the brain.

It is a pleasure to express my thanks to Dr. A. P. Thomson for permission to report this case, which was admitted to the Birmingham General Hospital under his care, and to Dr. Stanley Barnes for his helpful interest.

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A CASE OF ACUTE TOXIC CHOREA

By

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The pathogenesis of chorea is by no means established and the exact cerebral mechanism by which the hyperkinesis is determined is still in dispute.

Wilson suggests that the movements are essentially cortical in origin and that they are liberated as a result of interference with one or other afferent path which finally impinges on the cortical motor areas. This theory is tending to displace the older view that chorea is accounted for by a localized lesion in the corpus striatum regarded as an effector discharge centre. Wilson states: 'My summary in respect of choreoathetosis is that it represents a complex type of involuntary movement, for the carrying out of which motor mechanisms of cortical site are requisite. No single and invariable anatomical site for lesions underlying its development is to be expected. It is the expression of disorder of a system. To its continuance afferent cerebello-cerebral defect of regulation contributes and transcortical (volitional) control over its manifestations is very imperfect. As I have on several previous occasions strongly urged, any theory attributing its origin uniquely to striatal destructive lesions is impossible.' [1] So far as the pathology is concerned Minkowski [2] and Littman [3] have adduced pathological and experimental evidence rejecting the striatal theory, while Ziegler [4] found that Sydenham's chorea was associated with chromatolysis of practically all cells of the central nervous system with swelling of the nuclei and central displacement. Again, Marie and Trétiakoff [5] in a detailed histological examination of a fatal case of Sydenham's chorea found that changes occurred in all parts of the cerebro-spinal system except (in this case) in the medulla and cerebellum. There is a predilection for the grey matter especially of the cerebral cortex and basal ganglia. The following case is described as a contribution to the subject.

E.A., a young unmarried woman, age 20, by occupation a weaver, was admitted to the Royal United Hospital, Bath, on January 27, 1934. Both she and her sister had been subject to growing pains in adolescence, but otherwise had been healthy with no previous history of chorea.

In December 1932, the patient contracted mumps and had never been well since. She suffered repeatedly from tonsillitis and sore throats. Choreic symptoms started in September 1933, and became very much worse after tonsillectomy in December 1933. Since then she had become more ill, had had no sleep for a week and had been off work for eight days, though for some time previously she had only been able to carry it out with difficulty owing to her involuntary movements.

On admission, she was found to have considerable difficulty in speech and was unable to feed herself owing to a severe degree of choreiform movements especially of the right hand and forearms, lips and eyes. When she attempted voluntary activity the movements became very explosive and violent, so much so that she bruised herself severely. There was no complaint of rheumatic pain, and no demonstrable nodules were discovered.

The apex beat was in the fifth space, $3\frac{3}{4}$ inches from the midline. There was a systolic bruit localized to the apical region, and the pulmonary second sound was accentuated.

At the time of her admission one of us was experimenting on the induction of hyperpyrexia in cases of chorea by hot baths; this was a development from the findings of Sutton [6] and Bateman [7] on the effect of hyperpyrexia induced by T.A.B. injections in similar cases. The patient was therefore given a series of baths, the temperature being controlled by a self-recording rectal thermometer. On the first occasion the patient was difficult and inclined to resent the treatment. On the next five occasions, all went well. The patient's temperature rose to 104° F. for 15 minutes, then although the temperature of the bath never rose above 109° F. she maintained a temperature of 102° F. for three hours with very little change in the pulse rate.

On February 4, during the seventh bath, the patient for no apparent reason suddenly stood up, withdrew the rectal thermometer and threw it against the wall. Afterwards she was profusely apologetic for breaking the instrument, and as she was becoming much quieter and sleeping reasonably well, the baths were continued at the same temperature, control depending on intermittent observation of the patient's temperature.

On February 7, she did not seem so well and slept badly. Two days later she was definitely worse and the baths were therefore stopped and nirvanol (3 grs.) was given. Next day she was much worse and was very violent in the evening. Paraldehyde and bromide were given three-hourly and retainers were necessary to keep her in bed. On February 11 she was so violent that nembutal was administered, and this was repeated in $1\frac{1}{2}$-grm. doses up to 7 grm. altogether before she could be quietened; then she became semicomatose.

Lumbar puncture yielded a clear fluid under slight pressure, of a faint yellow colour, with no clot. Cells, 2 lymphocytes per c.cm.; globulin, negative; protein, less than 0·03 per cent.; sugar, 0·07 per cent.; urea, 0·03 per cent.; Lange curve, 0111110000.

Her temperature then rose to 103° F., and the lung bases became congested. The pupils were contracted equal, and reacted to light. No reflexes were elicited.

On February 13 she died, without having regained full consciousness.

PATHOLOGY

At the post-mortem examination, bronchopneumonia was found at both bases, but otherwise no pathological lesion was discovered outside the central nervous system.

The meninges and brain were very congested and there was marked cortical laceration, especially on the left side, from the separation of the Pacchionian bodies which were larger than normal.

Microscopical Examination.—Cerebral Cortex.—Sections taken from the precentral and postcentral areas of the left hemisphere and stained by toluidin blue showed marked swelling of the brain, vascular engorgement and

small subpial hæmorrhages. The nerve-cells exhibited varying degrees of chromatolysis, staining diffusely by this method. The general œdema had disturbed the normal cyto-architectonics of these regions. There was little or no evidence of glial proliferation. No fibre degeneration was observed in sections stained by the Weigert-Pal method. The cortex therefore showed typical changes consequent on general toxæmia, but no specific indication of inflammation or degeneration.

Basal Ganglia.—Thalamus.—Toluidin blue preparations showed swelling and chromatolysis of the majority of the ganglion-cells. It was usual to see about two-thirds of the cell body staining a greenish-yellow colour. When stained by Scharlach R the cells were found to have undergone an advanced

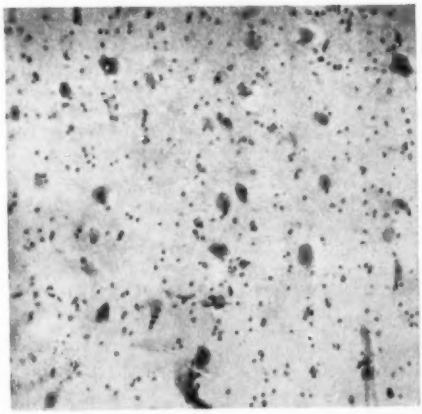

FIG. 1.—Thalamus. Medial nucleus. Chromatolysis, swelling and fatty changes. Toluidin blue × 100.

degree of fatty change, the granules appearing orange-red in colour. Similar findings in the corpus striatum have been reported by Globus [8] in a case of acute chorea associated with diphtheria of the large intestine. This picture suggests a special susceptibility of the thalamic cells to the toxæmia (fig. 1).

Globus Pallidus.—The majority of the large cells were preserved, staining deeply and showing little differentiation between cytoplasm and nucleus. The fibre system, as shown by the Weigert-Pal method, was unaffected. The neuronic elements, therefore, only showed the results of a severe toxæmia. A very noticeable feature was the presence of numerous giant glial nuclei, the so-called Alzheimer cells. These cells were also found in smaller numbers in the putamen, and scattered among the neurones of the dentate nucleus (figs. 2 and 3). Their appearance in toxic and infective conditions has been noticed by Campbell and Morse,[9] but is perhaps most constant in pseudo-sclerosis and progressive lenticular degeneration.

Putamen.—The degenerative changes were here much more marked than in the thalamus or globus pallidus. Many of the small ganglion-cells had

FIG. 2.—Globus pallidus. Degenerate ganglion cell and two Alzheimer cells. Toluidin blue × 600.

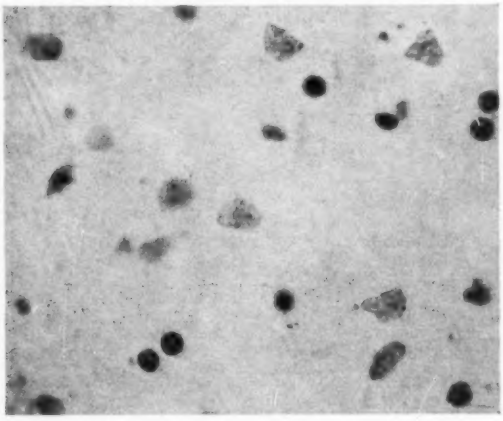

FIG. 3.—Dentate nucleus. Alzheimer cells. Toluidin blue × 600.

disappeared, while the few large cells visible were in a necrotic condition and contained fatty granules. Satellitosis was frequently present (fig. 4).

Caudate Nucleus.—The changes observed in the putamen occurred here in a more advanced degree. Very few recognizable nerve-cells remained.

Numerous large nuclei containing little chromatin material and no nucleoli were scattered over the field. They were larger than normal astrocyte nuclei, but smaller than the fully formed Alzheimer cells.

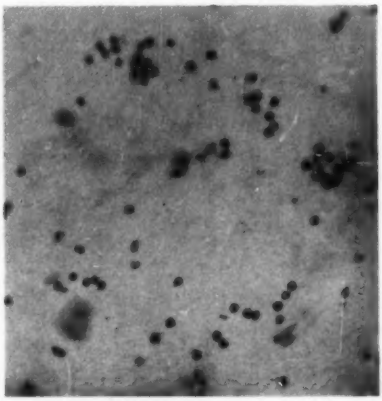

FIG. 4.—Putamen. Cell destruction and glial proliferation. Toluidin blue × 270.

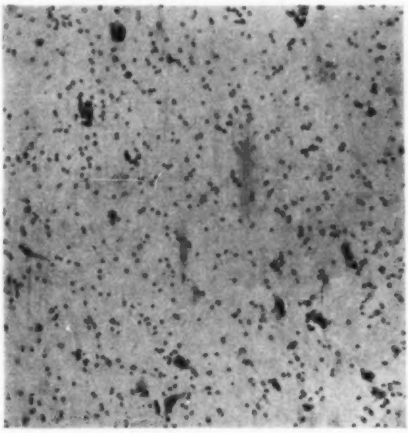

FIG. 5.—Red Nucleus. Chromatolysis and glial proliferation. Toluidin blue × 80.

Midbrain.—The cells of the substantia nigra showed only the generalized toxic changes of swelling and diffuse staining. No glial reaction was present. In this situation no defect of myelinization was found in Weigert-Pal preparations. In the *red nucleus*, however, frequent examples of a more advanced

cellular degeneration were visible. Satellitosis was here a prominent feature (figs. 5 and 6). The cerebral crura were normally myelinated.

Dentate Nucleus.—Many cells were in a degenerate condition appearing only as pale shadows in toluidin blue preparations, and Alzheimer cells were present.

SUMMARY OF PATHOLOGICAL FINDINGS

The microscopical examination of various parts of the brain showed a general state of toxæmia affecting all areas examined. The destruction of nerve-cells was most marked in the neostriatum. Fatty substances were

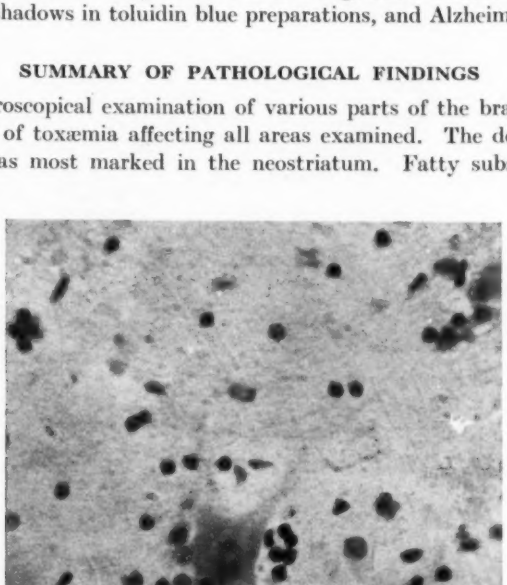

FIG. 6.—Red nucleus. Satellitosis. Toluidin blue × 450.

demonstrated in the ganglion-cells of the thalamus and putamen. The pallidal projection-system was well preserved.

The presence of Alzheimer cells in globus pallidus, putamen and dentate nuclei was observed.

In the midbrain the red nuclei suffered more than the cells of the substantia nigra.

The changes in the cerebral cortex were of a less severe character, and it is clear that a relatively intact pyramidal tract mechanism was preserved for the exteriorization of the hyperkinesis.

There were no signs of tubercular lesions in the Pacchionian bodies, nor were the cell clusters referred to by Winkelman and Eckel [10] as nodules or possible embolic formations seen in any part of the brain examined.

CONCLUSIONS

The above fatal case of acute chorea was presumably rheumatic in origin in view of the absence of any definite inflammatory focus in the body, other

than the terminal bronchopneumonia, and of the very mild degree of perivascular inflammatory reaction, and the absence of exudative and destructive changes in the substantia nigra. The pathological findings agree fairly closely with those described by Freeman,[11] viz.: 'The gross picture in rheumatic fever and chorea is altogether like that of any acute infectious disease; swelling and softness of the brain with vascular injection and occasional small hæmorrhages. Microscopically the alterations in circulation and water balance are corroborated, and there is nothing specific in the alterations of the ganglion-cells. Areas of cortical obliteration are not infrequent. Acute degenerative changes may be especially severe in the locus niger, neostriatum and corpus subthalamicum, but the cortical cells are also said to be severely altered in some cases. There is no reaction on the part of the glia.'

The interesting points in the present case are :—

1. The special susceptibility to the toxin of neostriatum, thalamus, and to a lesser extent the red nucleus and the dentate nucleus.

2. The relative immunity of the cortex and substantia nigra.

3. The almost complete immunity of the cortical and striate projicient fibre system.

4. The presence of definite Alzheimer cells in globus pallidus, putamen, and dentate nucleus.

These are said by most authorities to be characteristic of degenerative changes such as Wilson's disease (progressive lenticular degeneration) and Westphal-Strümpell's pseudo-sclerosis; but in this case they seem to be associated with a toxic condition, thus confirming the observations of Campbell and Morse.

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UNUSUAL SIZE OF INTRAVENTRICULAR SPONGIOBLASTOMA IN A CASE OF TUBEROUS SCLEROSIS *

By

L. C. COOK AND A. MEYER, LONDON

DURING recent years the main interest in tuberous sclerosis, apart from its ætiology, has been concentrated upon the tumour formation associated with it. The following case is considered noteworthy because of the exceptionally large size of the intraventricular tumour and the complete absence of physical signs until a few hours before death.

PERSONAL CASE

The patient was admitted to the Fountain Hospital for mental defectives on September 6, 1933, at the age of seven years and three months.

History.—She was the only child of Hebrew-Polish parents. Her father was dead of diabetes and her mother, an emotional woman who could speak little English, was 27 at the time of conception. No other members of the family appear to have been subjects of tuberous sclerosis or allied conditions. No definite evidence of psychopathic taint could be discovered in the family.

Gestation and labour were normal. Backwardness was noted during the first year and all 'landmarks' were reached late. The child's mother stated that she was mischievous, destructive to clothes and toys, and cruel to children and animals.

State on Admission.—She was slightly above average height and was adequately nourished. She showed no stigmata of degeneration. Adenoma sebaceum of cheeks and chin was present. The papules were multiple, small, and highly coloured (Pringle's type). There were no fibromata or pigmentary abnormalities on other parts of the body. No central nervous system lesions were discovered; tendon reflexes were normal and equal and there was no spasticity, incoordination or disorder of gait or speech. Pupils reacted normally to light and on accommodation; fundi and discs were normal and there were no signs whatever of raised intracranial pressure. Accurate investigation of the sensory system was precluded by the patient's mental state, but there were no gross lesions. Other systems were normal, except for a sluggish circulation and a tendency to chilblains. Serum Wassermann and Meinicke macro clarification reactions were negative.

Mental State.—The patient was of imbecile grade, her mental age being three, and her intelligence quotient 40. She was scarcely able to sustain the simplest conversation, but could understand easy questions, point to her features, name common objects and count up to four. She showed a tendency to echolalia. Usually she was bright, active and interested in her neighbours and her surroundings. Her disposition was more tractable than is usually found in these cases and there was present none of the characteristic restlessness and resistiveness to attention. She was clean in her habits and able to feed herself. She was subject, however, to occasional 'bad days,' during

* From the Central Pathological Laboratories of the London County Mental Hospitals.

which she was wont to scream for no apparent cause, to be spiteful to other children, to fret and cry to go home and to complain quite untruthfully of ill-treatment at the hands of fellow patients. On these occasions she was tremulous and even mildly ataxic, but showed no other signs of central nervous system lesion.

Her mother's history rather emphasized the spitefulness and troublesome nature of the child, and it appears that her 'bad days' were rather more frequent before admission.

It is common to find periodic alternations of resistiveness and irritability with relative amenability in these cases, but rather unusual for these changes to be regularly of such short duration as a day or so. The cycles are more apt to be measured in months or even years. The 'bad days' of this patient were possibly in the nature of epileptic equivalents.

Fits.—There was a history of infantile convulsions, but no fits occurred between infancy and her terminal attack.

Final Illness.—There was no change in her condition up to the day of her death. After tea she vomited and complained of headache. One and a half hours later she rapidly became comatose and at 7 p.m. was deeply unconscious. Breathing was slow and deep, corneal reflexes were absent and pupils were dilated and fixed. The trunk and legs were held rigidly in a position of extreme extension, while the arms were semiflexed and pronated. Slow athetoid movements, mainly involving the right arm, took place every few minutes. No reflexes could be elicited owing to the extreme rigidity. Papilloedema was absent. At 9 o'clock she became flaccid and moribund and death took place half an hour later.

The decerebrate nature of the attack clearly pointed to an infracortical origin, the lateral ventricle being the most probable site of the lesion.

PATHOLOGICAL EXAMINATION

Kidneys.—Each kidney weighed 2½ oz. Multiple small white tumours were scattered throughout the cortex and at the periphery of both organs and in addition there were several small cysts, filled with clear fluid. The capsules stripped easily and there were no other macroscopic abnormalities. Sections were kindly examined by Dr. R. J. V. Pulvertaft, who reports that the kidneys showed a fair number of small cysts, indicating a mild degree of congenital polycystic kidney. In addition there were a number of areas in the renal cortex which closely resembled normal fat in paraffin sections and stained with Sudan III in frozen sections. They did not show any rotation with polarized light. There would appear to be no doubt that the condition was one of multiple true lipomata. Although pure lipomata of the kidney are an uncommon type of tumour in association with tuberous sclerosis, their occurrence has been noted previously (F. Schob [14]).

Liver.—A considerable degree of venous congestion and cloudy swelling was present.

Lungs.—There was terminal congestion at both bases.

The heart, spleen, pancreas, thyroid, pituitary and suprarenals were normal both to naked eye and on microscopical examination.

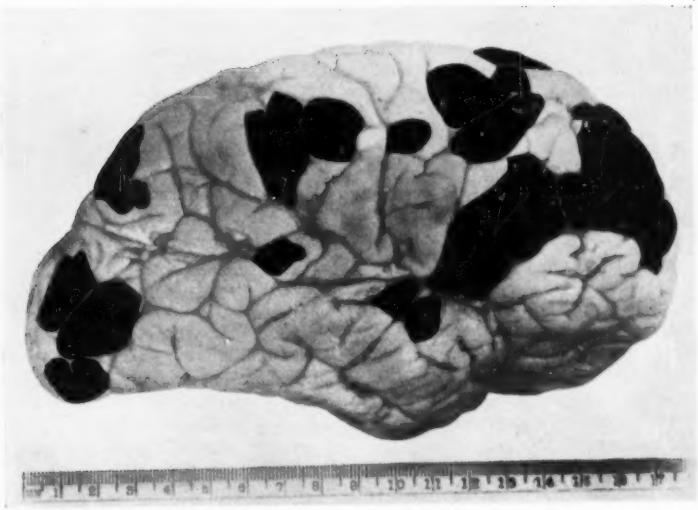

FIG. 1A.—Right hemisphere.

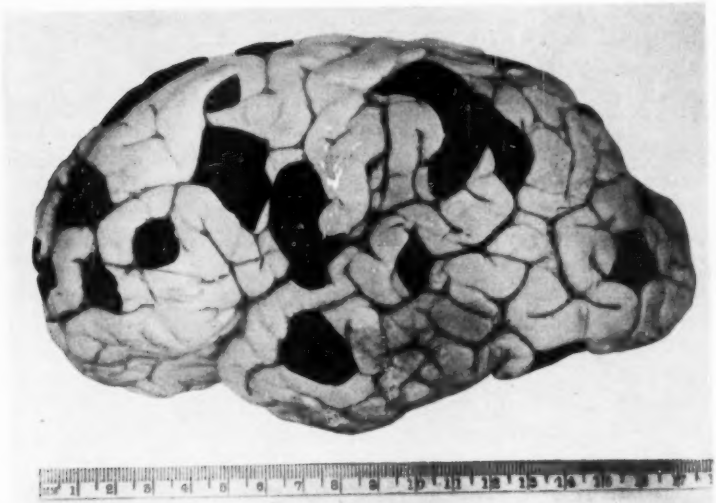

FIG. 1B.—Left hemisphere.

Brain.—Macroscopical.—Weight of whole brain, 1,135 gm.; cerebellum, 110 gm.

The cranium showed a generalized thinning of the vertex, such as might be associated with a mild degree of hydrocephaly. The membranes showed no abnormality and the pia-arachnoid stripped easily. There was no flattening or dryness of the cerebral hemispheres, or other sign of raised intracranial pressure.

The sclerotic nodules showed up strikingly as smooth, non-umbilicated, pale areas, not appreciably raised above the surface of the surrounding cortex,

FIG. 2.—Tumour in situ. Margin has been outlined.

but distinctly harder on palpation. They were abundant in number, scattered throughout both hemispheres and varying in diameter from $\frac{1}{2}$ to $9\frac{1}{2}$ cm. (figs. 1A and 1B). It will be seen that they are extremely irregular in shape and size and that their boundaries do not conform to those of the gyri.

On separation of the hemispheres a large tumour was seen to be occupying almost the whole of both lateral ventricles, which were very much dilated. In addition to the tumour a considerable amount of blood-stained fluid filled the ventricles. The corpus callosum was reduced to a thin strip, in parts no more than 1 mm. in thickness, and the fornices and septum pellucidum were completely obliterated. The wall of the left lateral ventricle was covered

with typical ' candle-guttering ' tumours (fig. 2) and the ependyma on both sides showed gross thickening of granular type.

The remainder of the brain and the retinæ presented no macroscopic abnormalities.

Tumour.—Weight, 103 gm.; length, 9 cm.; breadth, 6·9 cm.; depth, 4·9 cm.; cubic capacity, 115 c.cm.

The tumour was lying almost completely free in the ventricular cavity, only a small pedicle attaching it to the ependyma of the right lateral ventricle

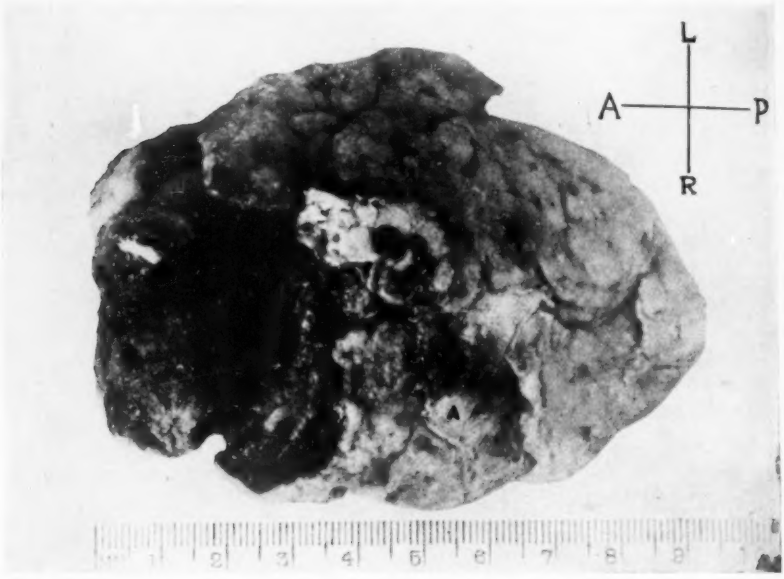

FIG. 3.—Tumour viewed from below, showing hæmorrhagic area in right anterior quadrant. (A) Point of attachment in right lateral ventricle.

in the striothalamic region. Of rather soft consistency and irregular shape, its surface was roughened and there was evidence of a recent hæmorrhage at the anterior pole, mainly on its right inferior aspect (fig. 3).

Microscopical.—The histological examination of the brain was of necessity confined to one of the macroscopically typical plaques of the cortex, one ' candle-guttering ' and the tumour itself. In the sclerotic plaque were to be seen both glial and ganglionic giant-cells lying either singly or in nests. They were not confined to the cortex, but also formed heterotopic areas in the underlying white matter. The ganglion-cells, even when of normal size, often presented unusual shapes and were to be found quite commonly in the most superficial layer of the cortex. Their orientation within the cortex was

markedly disturbed, many of them lying with their apices directed horizontally or downwards. Diffuse demyelination and fibrous glial proliferation were present throughout the plaque, the latter appearing at the surface as the peculiar and typical 'ruffled-hair' formation.

All these features have been described previously and need no special discussion. It is only necessary to add that in the neighbourhood of the plaques a spongiose state of the cortex, as described by Bielschowsky [2] and Schob,[14] could be detected.

A piece of the atrophied corpus callosum showed patchy demyelination and corresponding gliosis.

The 'candle-guttering' presented a typical microscopical picture,

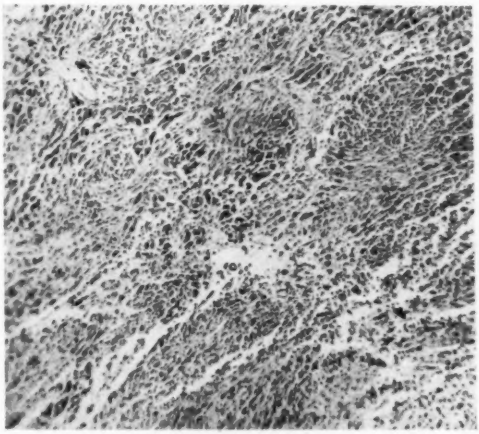

FIG. 4.—Tumour. Note the whorl-like appearance and the nests of giant-cells. Hæmatoxylin-eosin. × 90.

giant-cells and spindle-shaped spongioblasts arranged in strands being a prominent feature. In addition there was a very heavy glial fibrosis. Numerous calcified vessels and free-lying calcified bodies were present, some of the latter showing a stratification not unlike that of amyloid bodies, but giving a negative Lugol reaction.

Tumour.—In contrast with the 'candle-gutterings' the large tumour possessed no definite capsule of connective tissue, glia or ependyma, nor did it show any evidence of calcification. The main feature was the general whorl-like arrangement of the cells (fig. 4). On closer examination these whorls could be defined as strands of uni- and bipolar spindle-shaped spongioblasts, mixed with nests of giant-cells (fig. 5). These giant-cells, which are probably of glial origin, were frequently pear-shaped, although many other shapes were also encountered. The nucleus lay centrally in some cells,

excentrically in others. There also appeared many multinucleate forms of extraordinary size, resembling on account of their homogeneous protoplasm the so-called 'plump' cells. No cells approximating to the neuronic type could be discovered and no axis-cylinders appeared in the Bielschowsky-stained sections. Fibrous gliosis was generally of slight degree, only in local areas presenting an outstanding feature. In some parts there was a noteworthy proliferation of thin-walled capillaries, a lesion of which doubtless caused the fatal hæmorrhage.

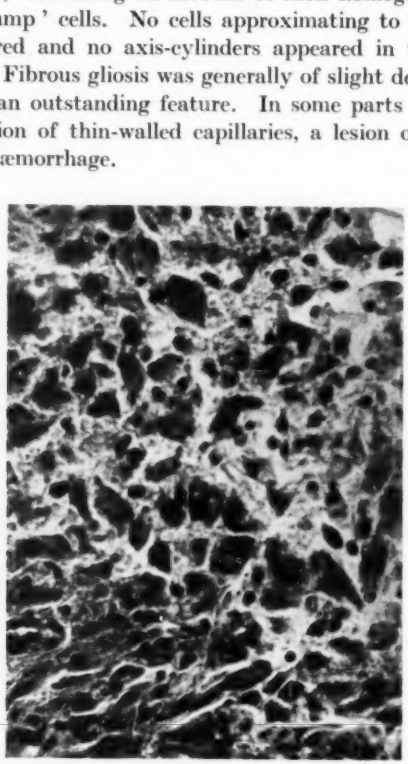

FIG. 5.—Tumour, showing strands of spongioblasts and pear-shaped giant-cells. Yaburek's silver method. × 550.

DISCUSSION

Tumours of a gliomatous nature accompanying tuberous sclerosis of the brain have been observed by many authors (Schuster,[15] Bielschowsky,[2] Brushfield and Wyatt,[4] Berliner, Creutzfeldt,[5] von Meduna,[13] Globus, Strauss and Selinsky,[9] etc.). Recently this coincidence has given rise to the view that there exists a close genotypic relationship between paraventricular spongioblastoma multiforme and tuberous sclerosis. In this regard the investigations of Creuzfeldt,[5] Bender and Panse,[1] van Bogaert,[3] Kufs,[12] Bielschowsky [2] and Globus, Strauss and Selinsky [9] are of great importance. They showed that not only in the actual patients affected with spongioblastoma of the brain, but also in other members of their families, more or less well-marked cerebral or extracerebral symptoms of tuberous sclerosis may occur. Accordingly

Bielschowsky comprehends both processes as a fœtal spongioblastosis, a term which is extended by Globus, Strauss and Selinsky to ' neurospongioblastosis ' on account of the presence of neuronic structures in the spongioblastomas of their cases.

Our own case contributes to this theory inasmuch as the tumour was of the nature of a typical spongioblastoma, and at the same time nearly all the cerebral and extracerebral characteristics of tuberous sclerosis were present, although they did not occur in other members of the family. The collection of such cases is still of importance, as by no means all those on record provide sufficiently clear evidence of the characteristics of both conditions (Kufs [12]). Furthermore, the spongioblastoma of our case is remarkable because of its extraordinary size and its peculiar growth, developing as it did from a very small basis in the striothalamic region into the lateral ventricle, where it was found as a free-lying mass. As regards the findings of Globus, Strauss and Selinsky we failed to discover any neuronic structures within the neoplasm. Moreover, there was no sign of calcification, typical of the ' candle-gutterings,' or of an ependymal covering.

In connexion with so large a tumour the absence of either focal or general signs of raised intracranial pressure until four hours before death must be almost unique ; and even in the end the symptoms were not produced by the tumour itself, but by hæmorrhage into it. Globus, Strauss and Selinsky describe a sudden onset of tumour symptoms in the majority of their cases, but an examination of their case-histories reveals that signs attributable to the neoplasm were present for two months in the shortest instance, and varied in duration from this period up to five years. Furthermore, none of their tumours was comparable in size to that of the present case.

It is evident that a combination of three factors was instrumental in allowing the tumour to reach such a huge size unheralded. In the first place its position within the ventricle was, of all sites, the most favourable for growth to occur without involving adjacent tissue or producing pressure signs. Secondly, growth must have been extremely slow, probably extending over the greater part of the child's life ; and lastly the condition arose at an age when the skull was most capable of expansion. In some respects the general condition of the cranium was not unlike that due to a mild degree of hydrocephaly. The circumference ($21\frac{3}{4}$ in.) was larger than the normal figure for the child's age ($20\frac{1}{2}$ in.), the vault was very thin, and its internal surface was uneven. The brain, however, showed no signs of excessive pressure and was not compressed against the skull-wall.

Our thanks are due to Dr. James Nicoll, medical superintendent of the Fountain Hospital, for permission to publish the case, and to Mr. J. E. Stevens for the photographs. We would also thank Dr. F. Golla as Director of the Central Pathological Laboratories of the London County Mental Hospitals, and the Rockefeller Foundation for a grant to one of us (A.M.).

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LAURENCE-MOON-BIEDL SYNDROME

A REPORT OF TWO CASES

By

PAULINE KLENERMAN, London

In view of the rarity of the Laurence-Moon-Biedl syndrome I should like to record two cases, both of which present interesting features.

Case I.—E. A. B., female, age 40. Admitted to Leavesden Mental Hospital on August 30, 1922.

Family History.—The parents were not related to each other. A maternal cousin died in Colney Hatch Asylum—apart from this the family history was negative. Age of father at patient's birth was 43; age of mother, 45. There were three sisters and one step-brother, but in none was evidence of extra fingers or toes obtained.

Personal History.—Her birth was normal. In 1884–85 two supernumerary digits were removed at St. George's Hospital. In 1887 her sight was stated to have become affected.

Present Appearance.—An extremely obese subject: obesity most marked round abdomen and mammæ (fig. 1). Face plump. Patient exhibits constant choreiform movements of the face, as well as rotatory movements of the eyes. Nose is small, lips are not thickened, tongue is moist. Height 5 ft. 1 in., weight 15 st. in 1931, 15 st. 3 lb. in 1934. Head circumference 21 in.

Heart sounds are distant, with a first mitral impurity; B.P. 135/115. Lungs, negative. Abdomen extremely obese. No splenic or hepatic enlargement.

Eyes: pupils equal, circular, react to light. There is definite nystagmus. Lenticular opacities present. Ophthalmoscopic examination reveals an irregular pigmentation all over the retinæ. The patient is partially blind.

Upper limbs: Right hand possesses six digits with syndactyly of middle and

Fig. 1.

double ring finger (ring finger presents two distinct nails). On the outer side of the hand a small scar is seen, where a supernumerary rudimentary finger was removed some years ago. X-ray film of right hand shows a small spicule of bone about $\frac{1}{8}$ in. long arising from the middle of the fifth metacarpal, and three terminal phalanges for the middle and ring fingers which are fused together (fig. 2). Left hand : Five digits with a scar of a rudimentary little finger removed some years ago. X-ray film shows a rudimentary accessory third phalanx interposed between the middle and ring fingers (fig. 2).

Lower limbs : The left foot exhibits six well-formed toes and no webbing. The right foot is normal and has five toes. X-ray film of left foot : little toe presents two terminal phalanges, two middle phalanges and two heads to a common metatarso-

FIG. 2.

phalangeal bone (fig. 3). The legs are short and fat. Knee-jerks poor on both sides ; flexor plantar responses.

Blood count : R.B.C., 4,720,000 per c.mm. ; W.B.C., 7,500 per c.mm. Differential count : polymorphs, 46·5 per cent. ; lymphocytes, 51·5 per cent. ; monocytes, 1 per cent. ; eosinophils, 1 per cent.

Sugar Tolerance Tests :

mg. per 100 c.cm.	Time in hours
116	0
124	0·5
145	1
162	1·5
149	2

Calcium serum : 14·5 mg. per 100 c.cm. Serum phosphate : 3·15 mg. per 100 c.cm. Blood Wassermann : negative.

X-ray photograph of skull (fig. 4) : Outer table appears thickened and dorsum sellæ enlarged. Urine : s.g. 1020 : no albumen or sugar.

FIG. 3.

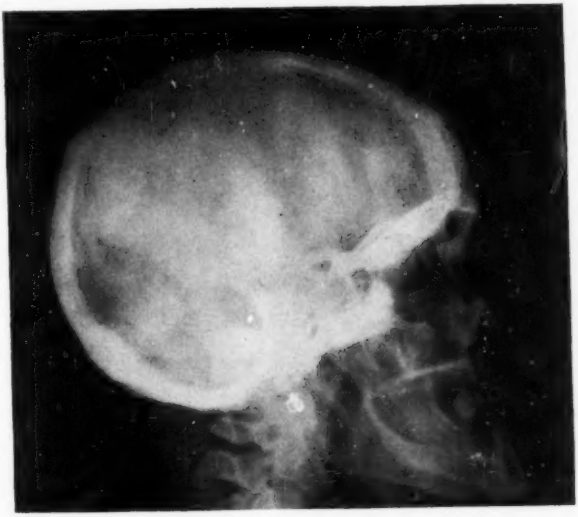

FIG. 4.

Mental Condition.—Patient is an imbecile: simple and childish in manner; emotional; speaks to herself; conversant with some objects by means of touch. Disorientated: remains all day in a wheel chair.

Case II.—L. P., female, age 72. Admitted on June 4, 1892. At that time patient was subject to moods of depression and irritability: remained seated in a chair nearly all day with downcast eyes and a stupid imbecile appearance. She refused to respond to any questions and was negligent of her person. No family history was obtained in her case.

FIG. 5.

Present Appearance. — Patient has a vacant expression and appears short owing to a marked kyphosis of the spine. Present height 4 ft. 6 in. The features are rather heavy and of acromegaloid type (fig. 5). Tongue moist, clean, tremulous; no upper teeth; lower ones present, discoloured; gums do not show any evidence of pyorrhœa. Weight (1934) 7 st. 11 lb. Circumference of head 23 in. There is no absence of hair on scalp or pubes.

Pulse regular: arterial wall palpable. Heart: first sound at mitral area replaced by a blowing systolic murmur heard at all areas. B.P. 150/130. Chest rachitic, emphysematous; numerous rhonchi accompany the breath sounds. There is a marked kyphosis of the upper part of the spine and a lower lumbar lordosis. Abdomen lax; no splenic or hepatic enlargement. There is no body or limb obesity.

Eyes: Vision dim and objects held very closely just perceptible. Pupils equal, circular and react to light. Definite nystagmus and lens opacities present. Discs difficult to see; irregular pigmentation scattered over both retinæ.

Upper limbs: Hands present no bony abnormalities: they are chilled and cyanotic. Lower limbs: Cyanotic appearance: right foot has a supernumerary little toe webbed to fifth toe (fig. 6). X-ray film: Little toe has two independent terminal phalanges and a bifid second phalanx attached to a single metatarsophalangeal bone. Left foot, five toes. X-ray of skull shows it has a thickened outline recalling Paget's disease. Dorsum sellæ appears enlarged. Knee-jerks brisk and equal. Flexor plantar response right side; left doubtful. Urine: s.g. 1018: no albumen or sugar; deposit of leucocytes, a few non-motile bacilli, and triple phosphates.

Blood count: R.B.C., 4,030,000 per c.mm.; W.B.C., 8,600 per c.mm. Differential count: polymorphs, 56 per cent.; immature, 2 per cent.; lymphocytes, 34 per cent.; eosinophils, 2·5 per cent.; monocytes, 4·5 per cent.

Blood sugar.—Resting, 93 mg. per 100 c.cm.

½ hour	169
1	242
1½	154
2	98

Calcium serum : 12·00 mg. per 100 c.cm. Serum phosphate : 2·76 mg. per 100 c.cm. Blood Wassermann : negative.

Present mental state : an imbecile ; pleasant disposition ; replies to questions ; sits in a chair all day with her head buried in her chest.

FIG. 6.

COMMENT

The complete Laurence-Moon-Biedl syndrome is characterized by adiposity, atypical retinitis pigmentosa, mental deficiency, polydactylism or syndactylism, dystrophia adiposogenitalis and a familial occurrence. All these features may be present, or a group of three or four signs may constitute the syndrome ; but only a few cases have been recorded without the ' cardinal ' signs, viz. retinitis pigmentosa and polydactylism. In the first case here described five of the above-mentioned signs are present, and only the familial occurrence is lacking ; in the second, retinitis pigmentosa, mental deficiency and polydactylism are in evidence.

In 1866 Laurence and Moon [1] reported four cases in a family of eight children and since then 77 additional cases have been recorded. In 1914 Bartolotti [2] described a single case, also Bardet [3] in 1920.

In 1922 Biedl [4] and in 1924 Raab [5] reported another family of six living

boys and girls of healthy parents, two of whom (brother and sister) showed typical retinitis pigmentosa, adiposity, genital dystrophy, polydactylism and mental deficiency. Two others in the family who died in infancy showed polydactylism.

In 1925 Solis Cohn and Weiss [6] and similarly Ricaldoni and Isola [7] in 1928 reported four children affected in a family of eight. The syndrome occurred in one half of the offspring of families reported by Madigan and Moore,[8] Rosenstein,[9] Zondek,[10] Beck,[11] McKinney,[12] Ornsteen,[13] McCrae and Weiss,[14] and in one-third of the offspring in the families of Decyon,[15] Grossman,[16] Rozabal-Farnes,[17] and Bing [18]; and in all the children in families reported by Kruckmann,[19] Mayer and Bernhardt.[20] In 1931 a case was reported by G. Griffiths.[21] Of particular interest is the report of Hain [22] of a group of peculiar developmental anomalies in the albino rat having some resemblance to those found in the Laurence-Moon-Biedl syndrome in man. These consisted of microphthalmia, lens opacity and blindness, while in families related to these rats other peculiarities such as skull deformities and genital malformations presented themselves.

In a series of 10 families described in the literature, 27 children were affected. In this group polydactylism or syndactylism was almost invariably present, the extra fingers or toes being rudimentary and appearing on the side of the normal fingers or toes; obesity and hypogenitalism of the Fröhlich type also occurred. Visual defects were constant; nystagmus was frequent, strabismus and optic atrophy occasional; irregular retinal pigmentation was present in all cases. Mental development was retarded in every instance; X-ray pictures of the skull showed the sella smaller than normal, occasionally flattened and irregular in contour. In adult cases, however, the sella is large and regular, and has an unusually high dorsum (to which Biedl drew attention). In the two cases described here the skull is thickened while the dorsum sella appears enlarged.

Although several members of the same family may be affected, there are no records of the occurrence of the syndrome in their ancestral relations. Consanguinity has been noted in two cases. The sexes appear to be equally affected. The blood morphology does not exhibit any unusual features. Serum calcium in the two cases now reported appears to be raised. Though the association of acromegaly with the syndrome has not been hitherto described, the possibility of the coexistence of the two conditions is suggested by Case II. The patient has an acromegalic face, maxillary prognathism, marked kyphosis and lumbar lordosis, but the upper and lower limbs are not unduly large. There is no marked increase in sugar tolerance.

Several explanations for the syndrome have been suggested. By some the skeletal malformations are attributed to increased amniotic pressure, the syndrome resembling in its ætiology the congenital defects found in achondroplasia, mongolian idiocy, cleidocranial dysostosis and congenital club foot. Raab has suggested internal hydrocephalus as a cause both of the skeletal

deformities and the inborn tendency to retinal changes, which usually develop in childhood. Biedl considers the disease of cerebral rather than hypophyseal origin and mentions structural changes in the sella as having ætiological significance. The presence of dystrophia adiposogenitalis and reports of improvement with pituitary therapy have naturally led to the assumption that the hypophysis is implicated. Bardet considers that the lesion affects both lobes of the hypophysis during embryonic and fœtal development; but sugar tolerance tests do not indicate persistent signs of pituitary disease. Improvement has been reported in two instances by administration of thyroid and pituitary: DeCyon reported a response to hypophyseal extract. In one of Biedl's cases treated with thyroid and pituitary vision improved, the menses were reestablished and loss of weight to the extent of 13 lb. occurred. Others have failed to obtain any results by these measures.

In the light of the histories reported here it seems fair to conclude that the syndrome is non-progressive and that its victims may reach a comparatively advanced age.

I wish to thank Dr. R. M. Stewart, Superintendent of the Leavesden Mental Hospital, for permission to record these cases.

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Editorial

PROPHYLACTIC MENTAL HYGIENE

NOTWITHSTANDING the great strides that psychiatry has made for many years and that added insight has been gained into the nature of mental disease, the incidence and recovery rates of psychotic disorder remain much in statu quo. Therapy in many directions, both physically and psychologically, though placed on a more scientific basis, seems to give us no further power to ameliorate the main bulk of the mental illnesses that necessitate certification. The Mental Treatment Act of 1930 has as its essential purpose the fostering of the early treatment of mental disorder, and, though it cannot be doubted that the mental patient can hardly come under skilled care too soon, there are good grounds for believing that even then we are impotent to stem the course of a frankly developed biogenetic psychosis. Out-patient clinics attached to general hospitals and other institutions are vigorously attempting to stem the ravages of neurotic suffering, but we have no criteria for supposing that thereby we are in any way really diminishing the number of future psychotics. It is probable that in our therapeutic attacks on the neurotic we are only dealing with the surface conflicts. Much, nevertheless, is thereby attained if only social adaptation is furthered and the individual once more rendered serviceable to the community. Mental breakdowns, be they slight or severe, have deep roots in an already predisposed organism. Amidst physical and mental stress these have grown in a fertile soil. A thought that challenges us is that there are now many going about their daily avocations at school, at home, office, or factory, who are destined to be inmates of a mental hospital in the course of a few years' time. The mental hygienist says that when the first symptom appears it is too late to abort the oncoming psychosis, and that if only some years previously, when mental conflict and maladjustment were first in evidence, treatment had been available, there might have been a chance of obviating more serious developments.

The great test of mental hygiene is its capacity to reduce the number of fresh admissions to mental hospitals. When we are dealing with organic or toxic psychoses the question is

comparatively simple. The factors of infection, alcohol and syphilis can be tackled. In the case of the affective psychoses and schizophrenia the problem is beset with fundamental difficulties because their ætiology is so obscure. Sterilization of the unfit and eugenic marriages may in the dim and distant future add their quotient of gain in this direction, but in the main our prophylactic energy is directed to the endeavour to stabilize those maladjusted personalities which are found to be breaking down through environmental stress. It may well be that an intensive campaign is needed to educate the public to the necessity for early treatment when mental instability first becomes manifest. Yet, unfortunately, in a great majority of our retrospective surveys of psychotic patients we note that there was evidence of a prepsychotic personality showing characteristic traits in childhood which would indicate the likelihood of a future breakdown in the face of unfavourable stress. If this be so, the conclusion is permissible that the insidious development of many so-called functional psychoses can be noted in the making long before an individual becomes so affected that institutional treatment is necessitated. All present-day psychology, to whatever school it may belong, realizes that the fundamental characteristics of personality are developed before the adolescent period. If we have a child with certain personality traits and we know his environment, it should be possible not only to foresee the likelihood of a future psychosis but also perhaps to obviate it. The conclusion would seem to follow that apart from eugenic measures and the improvement of the physical health of the community, our greatest asset in prophylactic mental hygiene will lie in close observation and investigation of young children and psychological treatment of those who evince abnormal trends.

It is in the realm of schizophrenia that this will apply most, for it is here that the prepsychotic indications of later severe maladjustment are commonly noted in the young. It is probable that these early childish peculiarities will not be adequately recognized at home. This will perhaps be so partly because many parents are none too observant and will be inclined to misinterpret any deviation from the norm and find excuses for them, and also partly because the schizophrenic characteristics of silly behaviour, day-dreaming, mannerisms and divorce from reality do not naturally seem so singular at that age as they would in an adult. Negativism would be regarded as simple obstinacy and stereotyped movements as nothing out of the ordinary. Seeing that in the direct treat-

ment of early psychopathological conditions, unless they are severe or bizarre, we must not expect much material to be forthcoming from the home, our hygiene in this direction should be centred on the school. Teachers should be trained to note the difficult or peculiar child, and educated to handle him rationally. Every member of a school staff should be sufficiently equipped to understand some of the fundamental problems of childhood and have the opportunity of being in touch with their youthful charges. A child guidance clinic should become an integral part of every school, and communionship should exist between teacher and psychiatrist. As at present we have school medical officers and nurses and routine examination of teeth and eyes, so there should be psychiatric clinics, psychologists and social workers acting as a team towards present and future mental health. The child guidance movement, though it has only lately come into being, is extending its activities and doing excellent progressive work.

Special studies have been made of the school histories of children who later on in life broke down with either dementia præcox or manic-depressive psychoses. It was found that in a fairly large proportion there had been evidence of oddness and peculiarity and that the teachers were in no way surprised to hear of the mental disease that became frankly manifested later. Many also had been recorded as seclusive, inaccessible, passive and shy. These presented no problems, gave no trouble, and had been looked upon so much as 'nobodies' that teachers only recalled them with difficulty. One half of the total of those who broke down mentally fell into these two groups, and these seem to be significant for our mental hygiene aspirations because they should have been comparatively easily recognized. The other half of the cases studied were said on the whole to be not much different from the average boy or girl. It is therefore difficult to see how any mental disorder could have been predicted. That some mental disease may have its source in the deleterious effects of a defective form of civilization is alleged by some psychopathologists, who would therefore direct hygienic efforts towards the amelioration of our social life.

Abstracts
Neurology

NEUROANATOMY AND NEUROPHYSIOLOGY

[112] **A contribution to the study of sensory nerve fibres : (1) The size and function of sensory nerve fibres : (2) The nerve tracts which conduct pain sensation from stomach and intestine : (3) The existence of sensory fibres in the autonomic nervous system** (Ein Beitrag über die sensible Nervenfasern, u.s.w.).—KEN KURÉ, SOUITY HIRAMATSU and SHIGEO OKINAKE. *Zeits. f. d. g. Neurol. u. Psychiat.*, 1934, **151**, 225.

THE authors sum up the results of their research as follows :—

I. By comparing the histological structure of different nerves they conclude that (*a*) thick medullated fibres convey the sensation for touch. This does not preclude such fibres from conducting other forms of sensibility. (*b*) Medullated fibres of moderate thickness convey the sensation of pain. This does not indicate that the sensation for pain may not also be conducted by thin, non-medullated fibres. (*c*) Medullated fibres of fine calibre serve as sensory nerves in the viscera and to a certain extent for different special senses, also these fibres may subserve that form of sensibility known as 'visceral sensation.'

II. For a long time it was a disputed point whether sensibility for pain passes from the intestines through anterior or posterior spinal nerve roots. The experiments described were performed on dogs in which the stomach was inflated in order to cause pain. It was ascertained that the sensation for pain was conducted by visceral fibres—the vagus nerve, sympathetic fibres running in the vagus, the periaortic plexus and the sympathetic trunk.

The sensation of pain passing through visceral fibres is partly conducted through the posterior roots, partly through the anterior. The irritability of these visceral fibres to a faradic current is exclusively conducted through the posterior roots, and conduction of the sensation of pain from the stomach is invariably carried out by visceral fibres in the vagus. Other tracts may conduct the sensation arising from inflating the stomach. Since Foerster ascertained that a sympathetic sensory by-path first becomes more sensitive some time after cutting out the cerebrospinal sensory tract, it is believed that the above-mentioned secondary tracts for stomach sensations also function as sensory tracts in certain circumstances after the chief tracts have been eliminated.

III. From the experiments described above, it was definitely shown that the sensation for pain arising in the stomach from extreme inflation is

conducted from the spinal cord by fibres passing through the anterior roots and having their cells of origin somewhere outside the spinal ganglia. In the same way it has been proved that sensory fibres exist which belong to the autonomic nervous system.

With regard to the existence of parasympathetic fibres in the spinal cord, the authors maintain that some of the fine sensory fibres which subserve certain forms of sensibility, e.g. the feeling of sexual pleasure and other forms which are related to the sensibility of the viscera, are to be looked upon as parasympathetic in origin.

M.

[113] **The relation of the premotor cortex to motor activity.**—P. C. Bucy. *Jour. Nerv. Ment. Dis.*, 1934, **79**, 621.

The cerebral cortex exerts its motor effects largely through two principal channels of outflow, the pyramidal tracts arising from the true motor area (area 4) and extrapyramidal pathways arising from the premotor area (area 6). In studying the activities of area 6, the following observations have been made in monkeys.

1. Stimulation of area 6 gives rise to (*a*) isolated, sustained responses mediated entirely by pathways to area 4; (*b*) complex contralateral responses effected by paths which pass both to area 4 and to subcortical centres; (*c*) movement in the ipsilateral extremities; (*d*) torsion of the trunk; (*e*) epileptiform after-discharge more readily than stimulation of area 4.

2. Extirpation of area 6 results in (*a*) deficit in the initiation of purposeful movement; (*b*) awkwardness in complex movement; (*c*) involuntary reflex grasping; (*d*) the appearance of spasticity and certain righting reflexes.

3. Extirpation of areas 4 and 6 bilaterally reduces the animal to the motor status of a thalamic preparation.

Areas 4 and 6 constitute the origin of the major motor projection systems of the cortex. Area 6 is primarily concerned with the integration of complex movements. Involuntary movements of the type seen in athetosis and torsion-spasm are associated with the activity of area 6. Area 6 exerts direct control over the ipsilateral extremities; area 6 may be more prone than area 4 to give rise to involuntary seizures of cortical origin.

Area 6 exerts an inhibitory influence over the subcortical centres concerned in the postural and righting reflexes.

R. G. G.

[114] **Experimental lesions of the pyramidal tract.**—C. Marshall. *Arch. of Neurol. and Psychiat.*, 1934, **32**, 778.

Following lesions of the pyramids in the medulla of cats (twelve bilateral and five unilateral) the initial symptomatology included the following:

(1) diminished or absent contact placing reactions; (2) reduced visual placing reactions; (3) difficulties in walking a ladder or narrow track; (4) delayed and otherwise disordered hopping reactions; (5) increased resistance to passive flexion; (6) diminished resistance to passive extension and a reduced spontaneous struggling in the affected limb; (7) spontaneous postural abnormalities; (8) non-correction of abnormal postures imposed on the feet; (9) occasional transient staggering; (10) a certain stiffness in the gait; (11) a heavy and awkward landing after jumping down from a height; and (12) reduced activity and a slowness and deliberation in motion.

In the case of unilateral lesions the defects were chiefly on the contralateral side. A certain amount of homolateral damage was, however, usually present. In the case of bilateral and unilateral lesions there were not infrequently differences in the forelimbs and hindlimbs, with a certain tendency for the hindlimbs to appear more disordered. In some cases, however, there was difficulty in equating the tests for the forelimbs and hindlimbs.

In all of the symptoms a certain amount of recovery took place. In some it was partial, while in others it appeared complete. There was no constant set of symptoms remaining over at the end of the period of observation of from two to three weeks. Pathologically, the pyramidal tracts were found partly or completely cut. The medial lemniscus was almost always damaged to a certain extent, and the predorsal bundle occasionally showed a small amount of degeneration.

The severity and duration of the symptoms generally paralleled the amount of degeneration found histologically. Since the injuries were not confined to the pyramidal tracts, it is probable that pure lesions of their structures would produce a smaller symptomatology than that described.

The findings were on the whole of lesser severity than those reported in cases of removal of the motor areas.

R. M. S.

[115] **Cerebral circulation. XXXII. Effect of stimulation of the sympathetic nerve on the pial vessels in the isolated head.**—J. L. Pool, H. S. Forbes and G. I. Nason. *Arch. of Neurol. and Psychiat.*, 1934, **32**, 915.

Stimulation of the cervical sympathetic nerve in a completely isolated head, when directly and adequately perfused by the blood of a living intact animal, was followed by (*a*) constriction of the ipsilateral arteries of the pia mater; (*b*) no change in diameter of the contralateral arteries of the pia; (*c*) dilatation of the ipsilateral pupil; (*d*) decrease in cerebrospinal fluid pressure. The authors believe that their experiment is crucial, proving (in cats) the existence of a true vasoconstrictive action of the cervical sympathetic nerve on the ipsilateral pial arteries.

R. M. S.

[116] **The site of the cortical taste-centre** (Zur Topik der corticalen Geschmacksphäre).—Alexandra Adler. *Zeits. f. d. g. Neurol. u. Psychiat.*, 1935, **152**, 25.

It is highly probable that taste is not localised in one single centre. A case observed by the author of this paper supports the assumption that the cortex of the insula is concerned in the representation of taste. Clinical and anatomical observations indicate that the temporal lobe and adjacent regions are closely associated with the projection fibres for taste.

M.

NEUROPATHOLOGY

[117] **Curves typical of blastomatosis in the spinal fluid tested with the Berlin blue colloidal reaction** (Curve a tipo blastomatoso nel liquor alla prova colloidale del bleu di Berlino).—V. M. Buscaino. *Riv. di pat. nerv. e ment.*, 1933, **42**, 596.

The author claims to have demonstrated a spinal fluid test for blastomatosis of brain or cord. This consists of a floccular deposit in tubes 5 and 6, or in 5, 6, or 7. He does not claim specificity for the test, but regards it as of prime importance in the diagnosis of intracranial or intraspinal pressure from blastoma of the brain, spinal cord, intrathecal nerve-roots, or meninges. These curves are not noted in pressure on the cord from blastomata or tubercular disease of the vertebral column.

R. G. G.

[118] **The amylolytic power of the cerebrospinal fluid.**—Norman Moulson. *Jour. Ment. Sci.*, 1934, **80**, 684.

The principal fact which becomes apparent is that the diastase of the cerebrospinal fluid is increased mainly in patients suffering from some degenerative or inflammatory process involving the central nervous system. It is supposed that in such diseases the permeability of the meninges to this colloidal substance is increased. Available information is not sufficient to suggest that diastase subserves any useful purpose in the central nervous system, or that estimations of its concentration are of diagnostic value. Nor does it appear that there is promise that this line of research is likely to lead to results of clinical value.

C. S. R.

[119] **Diagnostic value of paretic Lange curves in non-syphilitic nervous processes** (Die diagnostische Bedeutung der ' Paralysekurven ' der Kolloidreaktionen in Liquor für die nicht syphilogenen Prozesse des Nervensystems).—F. Plaut. *Zeits. f. d. g. Neurol. u. Psychiat.*, 1934, **151**, 89.

The colloidal gold reaction curve of ' paretic ' type is considered a characteristic sign of general paralysis. The author of this paper has detected this

same reaction in cases in which syphilis could be excluded. The diseases were :—

Disseminated sclerosis . . .	47 cases
Cerebral tumour	10 ,,
Diffuse inflammatory processes . .	3 ,,
Uræmia	3 ,,
Polyneuritis	2 ,,
Schizophrenia	2 ,,
Strangulation	1 case

The reaction was not found in cases of subacute combined degeneration, spastic spinal paralysis, tumours of the spinal cord, syringomyelia, amyotrophic lateral sclerosis, bulbar paralysis and arteriopathies of the brain and spinal cord.

M.

[120] **Histopathology of the external geniculate ganglion.**—A. T. Steegmann. *Arch. of Neurol. and Psychiat.*, 1934, **32**, 763.

The author finds that the cells of the external geniculate body are not sensitive to changes post mortem when compared with other cell groups, as, for example, the cells of the dentate nucleus. As would be expected, they suffer the most severe damage in the acute disease-processes—meningitis, uræmia, status epilepticus, and pertussis. Changes in the geniculate cells are accompanied by progressive and regressive reactions of the neuroglia, and pigment atrophy, which constitutes the most common change, is associated with socalled fatty sclerosis of some of the cells. Cells undergoing degeneration from interruption of the visual pathways or from subacute and chronic degenerative diseases develop an excessive accumulation of lipoid pigment.

R. M. S.

[121] **The histopathology of the dorsal nucleus of the vagus nerve** (Zur Histopathologie des dorsalen vagus Kerns).—H. U. Guizetti. *Deut. Zeits. f. Nervenheilk.*, 1934, **135**, 129.

The author summarizes his results as follows : In five cases of polioencephalitis severe and characteristic changes were seen in the cells of the dorsal nucleus of the vagus. In spite of extensive destruction in the body of this vegetative nucleus, especially in its second third, it was difficult to trace a relationship between the marked changes in these cells and the clinical symptoms. These latter differed little from the general symptoms observed in other cases of severe brain disease, e.g. acceleration of respiration, rapid pulse, and vomiting. The damage occurring in the vegetative centres of the midbrain may possibly be compensated for by other nuclei, taking up the functions of an inactive dorsal vagus nucleus.

M.

[122] **Spinal concussion : A histological study of two cases.**—R. S. Baldwin. *Arch. of Neurol. and Psychiat.*, 1934, **32,** 493.

In the two cases recorded here, injuries of the back caused complete paraplegia, retention of urine and fæces and marked sensory disturbances to total anæsthesia, with no evidence of direct pressure on the spinal cord or hæmorrhage into its substance.

Primary and secondary degeneration of the spinal nerve-fibres, foci of softening in the parenchyma of the cord and destruction of the ganglion cells can be considered as the pathological manifestations of concussion of the spinal cord. The breaking up of the nerve-fibres, their secondary degeneration and the formation of circumscribed foci of softening observed in these cases were exactly similar to the alterations experimentally produced by Schmaus. Though most marked at the site of trauma, the changes are usually scattered and may appear as destruction of single nerve-fibres only. Hæmorrhage has no part in the pathological picture.

R. M. S.

[123] **Damage to the spinal cord by kyphoscoliosis** (Beitrag zur Klinik der Rückenmarksscheidigung bei Kyphoskoliosen).—T. Schneller. *Münch. med. Woch.*, 1934, **81,** 1503.

The spinal cord is sometimes damaged as a result of a kyphoscoliosis giving rise to a partial paraplegia. Conservative treatment is indicated in the early stages, and can be continued for several months. An operation should be performed if the case does not improve after some months or if complications arise.

M.

[124] **A glioma of the spinal cord spreading to the meninges : histogenesis and correspondence with syringomyelia** (Glioma del midolla spinale diffuso alle meningi. Istogenesi e rapporti con la siringomielia).—P. E. Maspes. *Riv. di pat. nerv. e ment.*, 1934, **43,** 1142.

A case is described with the histological findings. The author points out that the origin of the tumour would seem to be from aberrant enbryological tissue corresponding to the origin of syringomyelia. He describes the method of propagation of the glioma to the leptomeninges and the histopathological picture of the process, and compares it with those previously described in the literature. He concludes that glioma assumes a particular morphological form when it develops outside nervous tissue and irritates meningeal tissue, which presents a picture of hypertrophic reactive leptomeningitis. The author thinks the clinical aspects of meningeal gliomatosis agree with those of sarcomatosis and carcinomatosis.

R. G. G.

[125] **Tuberous sclerosis with unusual lesions of the bones.**—J. S. Gottlieb and G. R. Lavine. *Arch. of Neurol. and Psychiat.*, 1933, **33,** 379.

A case of tuberous sclerosis, characterized by typical adenoma sebaceum, mental deficiency, a history of convulsive seizures and developmental stigmata, is presented. The unusual features are: (1) A retinal tumour of the right fundus which had fine capillaries dipping into its substance and a definite vessel running from the optic disc to the tumour itself; and (2) peculiar bony lesions limited to the skull and extremities, characterized by osteoporosis, mottling in the skull, periosteal thickening and destruction of the cortical architecture. The metacarpal bones and their associated phalanges showed a few round areas of increased rarefaction suggesting cysts.

R. M. S.

[126] **The cerebellum in disseminated sclerosis** (Untersuchung über das Kleinhirn bei multipler Sklerose).—W. Germulowica. *Deutsch. Zeit. f. Nervenheilk.*, 1934, **135,** 1.

The occurrence of sclerotic patches in the cerebellum was demonstrated in 12 cases of disseminated sclerosis. Special involvement of the margin of the ventricle was seen in one case only. Two frequent localizations were found. In the inner part of the white matter relatively small patches were seen surrounding the bloodvessels, but these bloodvessels were scarcely ever situated in the centre of a patch. The nucleus dentatus was another frequent site, its plicated lamina being far more seldom affected than its central white matter and hilum.

From these cases the definite impression is gained that the process originated in the bloodvessels, unsystematically spreading into the surround ing tissue. This localization of the sclerotic patches is not in favour of spread by way of the cerebrospinal fluid, but rather by way of bloodvessels; consequently both sides of the cerebellum were affected, but in no way symmetrically. Patches in the cortex of the cerebellum were seen only exceptionally. It is noteworthy that the patches in the cerebellum are found in very different situations; the symptoms generally supposed to be associated with the cerebellum, therefore, e.g. scanning speech, intention tremor and nystagmus, in certain cases may be a result of lesions of definite centres and in others a result of damaged tracts which are in connexion with these centres.

C. W. D.

[127] **The chronaxy of neurones considered as part of a complex path** (La cronassia di subordinazione).—F. Visintini. *Riv. di pat. nerv. e ment.*, 1934, **43,** 1096.

This term is used for the study of the chronaxy of a nerve-muscle preparation as part of a larger pattern through the central nervous system as opposed to

its study in isolation. The author examines this subject in relation to various clinical syndromes and concludes that many of the theories as to the significance of certain chronaxial findings have been too hastily evolved. For example, he shows that whereas it was thought that an equalization of the chronaxy of antagonists and agonists was pathognomonic of extrapyramidal lesions, in progressive pyramidal lesions such a phase of equality may occur in the natural history of the disease-process. He therefore considers that too hasty conclusions as to the localization of nervous lesions should not be drawn and that more work on the subject of chronaxial findings in relation to nervous disease is required.

R. G. G.

[128] **Research on the chronaxial findings in catatonia and in its experimental interruption** (Ricerche sulla cronassia nella sindrome catatonica e nella sua interruzione sperimentale).—P. E. Maspes and F. Visintini. *Riv. di pat. nerv. e ment.*, 1934, **43**, 1085.

This work seems to show that the study of the chronaxy of the muscles confirms the idea that catatonia is a subcortical phenomenon, and that the pyramidal system has little or no action on it. Interruption of the catatonic state by the administration of sodium amytal does not affect the chronaxial findings; and since this drug has no action on the pyramidal system its effect must be on the psychic levels, having some sort of unexplained psychomotor influence.

R. G. G.

[129] **Modification of the blood bromine during convulsive fits** (Le modificazioni del bromo ematico durante gli accessi convulsivi).—G. Curti. *Riv. di pat. nerv. e ment.*, 1934, **43**, 1077.

The author reviews the theories of Zondek on bromine metabolism, which seems to be controlled by the hypophysis. He then describes some experiments of his own in idiopathic epilepsy carried out with the object of investigating the modifications of blood bromine during the convulsions. These show that during a fit the blood bromine is raised, so it is possible that the fit is due to a fall in the bromine content of the nervous system.

R. G. G.

130] **Experimentally produced convulsions : Effect on thujone convulsions of insulin and of variations in water content of brain.**—H. M. Keith. *Arch. of Neurol. and Psychiat.*, 1935, **33**, 353.

The administration of large amounts of water by stomach tube, accompanied by repeated subcutaneous injections of pitressin, causes spontaneous con-

vulsions in rabbits, with increase in the water content of the brain, and makes them more susceptible to thujone convulsions (thujone being the chief constituent of the volatile oil of absinth). The production of insulin hypoglycæmia to the point at which spontaneous convulsions occur has a similar effect, and there is some increase in the water content of the brain, but this increase is not the factor which makes the animal more susceptible to convulsions.

R. M. S.

[131] **The effects of sodium amytal on the metabolism.**—William Dameshek, Abraham Myerson and Julius Loman. *Amer. Jour. Psychiat.*, 1934, **91**, 113.

Sodium amytal was given intravenously in large and small doses and orally in large doses to groups of ' normal ' subjects of an institution for the insane, the various physiological effects being noted. In addition, the effects of the drug on a small group of patients with secondary or therapeutic hyperthyroidism were studied. Large doses (1 gm.) given intravenously caused deep sleep, fall in systolic pressure, fall in temperature, averaging 1° F., marked diminution in basal metabolic rate, averaging 26 per cent., and slight though definite diminution in ' uptake ' of oxygen and dextrose by the brain. Small doses (0·25 gm.) caused drowsiness, slight fall in systolic pressure, slight fall in temperature, averaging 0·6° F., and variable effect on the metabolic rate which usually became increased, at times diminished. Large doses by the mouth at times increased and at others diminished the metabolic rate. Given to four patients with therapeutic hyperthyroidism, definite though temporary reduction in metabolic rate occurred in two. The effect on the metabolism of the brain is discussed and compared with the much more marked effect of ether given in large doses. It is thought probable that both drugs cause a diminution in the oxidative processes of brain tissue, more marked in profound anæsthesia than with the less profound sleep of amytal. The striking effect of large doses on basal metabolism is discussed, and it is concluded that the extreme diminution is probably due to a combined effect of sleep and a more specific effect of the drug on brain (hypothalamic ?) tissue. The diminution in bodily temperature is also discussed, and is thought to be due to the marked fall in heat production (metabolism), though the possibility of an effect on the heat-regulating centre cannot be excluded.

C. S. R.

[132] **The reactive alterations of the glia-cells in gliomata** (Über reaktive Veränderungen der Gliazellen in Gliomen).—M. Wajlenberg. *Zeits. f. d. g. Neurol. u. Psychiat.*, 1934, **151**, 729.

In cases of glioma of the brain cells are seen which have probably arisen as a result of a reactive alteration in glia-cells. In the different types of

glioma typical fatty granular cells and dysplastic glia-cells can be observed if neuronic alterations have supervened. The author has met with the same type of granular cells in a case of medulloblastoma. Every glia-cell therefore probably has a natural aptitude for phagocytosis and for transformation into lipoid substances.

Wallenberg has made a special research into the origin of the so-called giant glia-cells. Two different types of such cells exist : (1) Cells containing a well-formed nucleus nearly always situated in the neighbourhood of blood-vessels, and (2) monster glia-cells containing diffuse chromatin and always situated in the neighbourhood of necrotic tissue. He is inclined to the opinion that a giant glia-cell is produced as a result of an irritation provoked by the imbedding of a foreign body and may be compared to the origin of giant cells in other kinds of tissue.

M.

SENSORIMOTOR NEUROLOGY

[133] **Acute pyrexial syphilis of the brain** (Über akute fieberhafte Hirnsyphilis). —N. A. Popow and G. D. Aranowitch. *Deut. Zeits. f. Nervenheilk.*, 1934, **135,** 31.

Cases of acute pyrexial syphilis of the brain are to be regarded as special forms of neurosyphilis, the onset being acute or subacute, an exacerbation often occurring later. Such cases are severe at the onset. A rapid improvement may be obtained by specific treatment. Cases of pure meningeal involvement have to be differentiated from meningoencephalitic affections with predominant cerebral symptoms. The postmortem examination performed in a few cases showed a meningoencephalitis with predominant changes in the meninges.

M.

[134] **General paralysis of the insane in Burma.**—G. H. Fraser. *Indian Med. Gaz.*, 1934, **69,** 661.

The relative rarity of general paralysis in India in association with the high incidence of malaria has led to the suggestion that this disease may occur in a modified form and so escape recognition. It may be admitted that aberrant clinical types are met with, but it has yet to be shown that such cases exhibit positive serological reactions. The wide range of the clinical manifestations of general paralysis, which is a feature of this disease in Burma, renders it difficult to base a diagnosis on the clinical data alone. It is conceivable that cases are missed owing to the fact that they are modified by naturally acquired malaria. That this may be so is supported by the fact that many recover completely or are only slightly reduced mentally as a result of treatment by malarial therapy. It may therefore be presumed that

those cases subjected to repeated infection of naturally acquired malaria exhibit a modified clinical picture. It is also to be expected that the chronicity of the disease will become more marked and the clinical signs modified. Here the usual criteria of diagnosis do not help, for, as in the cases successfully treated by malaria, there may be no clinical data and the serological results may be greatly modified. It may well be that general paralysis is more common than is generally supposed in tropical countries, but whether this premise is correct or not in Burma (where syphilis is far more prevalent than in most parts of India), the classical form of general paralysis is relatively common. It would appear that by long residence in a malarious country an *x*-factor is acquired which modifies the course, duration and clinical signs of the parenchymatous affections of syphilis; that, by long residence in a non-malarious country, this *x*-factor is absent so that the reaction of the nervous system to syphilis takes the well-known form; and that by migration from a malarious to a non-malarious country the *x*-factor is lost. In a large moving population, such as one finds in Burma, many syphilitics will be found in whom this *x*-factor is complete, modified or entirely absent. This is a possible explanation of the varied manifestations of parasyphilis, as some parts of Burma are malarious and others not.

C. S. R.

[135] **Cases of coma in patients in a general hospital.**—P. Soloman and C. D. Airing. *Amer. Jour. Med. Sci.*, 1934, **188,** 805.

This report contains an analysis of the records of 37,438 patients admitted to the Boston City Hospital in 1933. Of these, 1,167 were admitted in coma. Alcohol was responsible in 59·1 per cent., trauma in 13 per cent. and cerebro-vascular lesions in 10 per cent. The last two conditions constituted more than half of the 59 non-alcoholic comas. Other causes, which formed 30 per cent. or less of the total, in order of numerical importance, were: poisoning, epilepsy, diabetes, meningitis, anæmia, cardiac failure, exsanguination, neurosyphilis, uræmia and eclampsia.

C. W. D.

[136] **A case of psychosis associated with midline cerebellar tumour.**—Leo Stone and William C. Menninger. *Arch. of Neurol. and Psychiat.*, 1935, **33,** 399.

A case of midline cerebellar tumour with marked internal hydrocephalus is described with the post-mortem observations. The case presented a syndrome highly suggestive of a neoplasm of the left frontal lobe with a notable inconspicuousness of cerebellar signs or evidences of high intracranial pressure characteristic of subtentorial tumours in general. The possible dynamics of

the hydrocephalic mental syndrome are mentioned with reference to organic vulnerability of the frontal lobes, to psychopathological predisposition, and to unusual resistiveness of the cerebellar pathways. It is concluded that a psychosis may be the presenting clinical problem in cerebellar tumour, and all conclusive manifestations of such a tumour may be lacking at the time when the patient is seen. Topographic diagnosis is always difficult with advanced tumour of the brain, and more difficult than usual when a psychosis excludes the possibility of a reliable subjective account of the disease. Ventriculography should be employed to avert error.

C. S. R.

[137] **Facial and meningeal angiomatosis associated with calcifications of the brain cortex.**—K. H. KRABBE. *Arch. of Neurol. and Psychiat.*, 1934, **32**, 737.

THE six cases reported presented a characteristic clinical picture, nearly all showing a combination of epileptic fits and angiomas of the face. To these, the most prominent, may be added, as frequent symptoms, mental debility and a slight spastic hemiplegia on the side opposite to the angioma of the face. Furthermore, the patients are sometimes rather fat. If x-ray examination is made, a characteristic shadow appears inside the skull, a distinct sinuous shadow, presenting exactly the shape of the surface of the brain, showing both gyri and sulci, often with double contours. Generally, this shadow is localized in the occipital lobe.

Histological examination of the brain shows that the shadow is due to calcification of the outer layers of the cortex, not of the pia mater. This presents in some parts an abundant vascularization, but not a true angioma. The calcification consists of numerous small, mostly microscopic, granules of lime salts, localized in the second and third layers of the cortex. In these layers the nerve tissue is in great part destroyed and replaced by fibrillar neuroglia. In the case described, the occipital lobe, in which the processes were localized, had shrunk and was sclerotic. Otherwise the brain seemed fairly normal; only in places were the same modifications seen to a very slight degree. The changes in the brain probably are not secondary to angiomas of the pia mater. The syndrome must be related to a more generalized malformation of the organism (as in tuberous sclerosis), consisting in the formation of angiomas of the face, slight angiomatous modifications of the pia mater, aplasia of the occipital lobe of the brain with (probably secondary) sclerosis and calcification of the aplastic part. The malformations probably originate in fœtal life.

The anatomopathological observations suggest certain directions for therapy. The calcifications are related not to a tumour but to a congenital defect and malformation. Hence operation is not indicated. X-ray treatment may perhaps be administered 'consolaminis causa.' No striking

results are to be expected from treatment, however, since regeneration of aplastic brain tissue is not possible. Symptomatic treatment for the epileptic fits and mental hygienic treatment for the mental defects must be considered as the only therapy.

R. M. S.

[138] **Paradoxical symptoms in right temporal lobe tumour.**—L. STONE. *Jour. Nerv. Ment. Dis.*, 1934, **79**, 1.

AN interesting case in which tumour developed in a psychoneurotic patient. Thirty years previously he had a 'nervous breakdown' with symptoms similar to those of his final illness.

Homolateral visual hallucinations in the presence of contralateral field defects, aphasia in a right-sided tumour, alterations in x-ray appearances of the skull, and certain mental deteriorations were all observed.

R. G. G.

[139] **Parkinsonism and head trauma** (Parkinsonismus und Schaedeltrauma). —W. BAUMANN. *Münch. med. Woch.*, 1934, **81**, 936.

A MAN of 24 years of age suffered a severe trauma of the skull, losing consciousness for several hours. Following this he was unable to move his limbs in a normal manner. Four months later the author examined the patient and made a diagnosis of Parkinsonism. In a discussion of the relation between the trauma and the nervous disease, Baumann assumes a predisposing susceptibility of the corpus striatum to traumatic [illegible]tation, which he considers the cause of Parkinsonism. The traumatic origin of Parkinsonism in this case does not appear at all convincing.

M.

[140] **Blood pressure and pulse rate, their relationship to convulsions, and the frequency of convulsions under the influence of oxygen insufflation in cryptogenic convulsive states.**—J. NOTKIN. *Amer. Jour. Psychiat.*, 1934, **91**, 147.

OXYGEN was insufflated subcutaneously in large volumes in a group of seven patients with cryptogenic convulsive states. There was little if any correlation between the time of occurrence of a convulsion and the direction of change of blood pressure and pulse rate curves between any two consecutive readings. Oxygen, when given subcutaneously, does not exert any appreciable influence on the frequency of the convulsive attacks.

C. S. R.

[141] **Atopy as a cause of epilepsy.**—J. FORMAN. *Arch. of Neurol. and Psychiat.*, 1934, **32,** 517.

THE writer submits clinical evidence to show that the form of allergy which is controlled by inheritance—atopy—may in a few cases play a part in the production of seizures, and if these selected patients are not allowed to come in contact with the specifically offending materials seizures do not occur.

R. M. S.

[142] **The pyknolepsies.**—SMITH ELY JELLIFFE. *Amer. Jour. Psychiat.*, 1934, **91,** 679.

LESS work has been done in this group than in any other of the allied branches of epilepsy. We are probably dealing with the same situation as in cryptogenic epilepsy, and it is probable the attacks are closely related to petit mal seizures. In some cases there is a definite history of head injury, in others evidence of previous inflammatory processes of the central nervous system, and, finally, in a third group affective instability might be considered as a responsible factor in decreasing the threshold of convulsibility. There is, however, in addition, something which is responsible for the unusual frequency of attacks. We are not prepared at the present time to state what this factor is; we can only surmise a possibility of some metabolic processes in these children which may be responsible for the phenomenon. As in epilepsy in general, there is probably a multiplicity of ætiological factors. The existence is suggested of various types of pyknolepsies which together with the narcolepsies, affect-epilepsies and other well-known paroxysmal disorders make the vast group of convulsive states.

C. S. R.

[143] **Acid base equilibrium in epilepsy.**—GEORGE M. DOOLITTLE. *Psychiatric Quarterly*, 1934, **8,** 754.

THERE is some evidence of an increased *p*H value in the body fluids of epileptics, particularly before seizures. This increased *p*H is often accompanied by the retention of water. Convulsive attacks may serve a compensatory purpose in some cases and tend to reduce the increased *p*H value. Diets such as the ketogenic, the starvation and the dehydration may aid in maintaining normal *p*H values of the body fluids.

C. S. R.

[144] **Poliomyelitis : A study of 410 patients at the Philadelphia Hospital for Contagious Diseases.**—P. F. LUCCHESI. *Amer. Jour. Med. Sci.*, 1934, **187,** 515.

THIS communication deals with the epidemic of poliomyelitis that occurred in Philadelphia during the summer of 1932. Four hundred and ten patients—

the greatest proportion of the reported cases—were admitted as suspected cases, and the diagnosis was verified in 304 (74 per cent.). The majority of those affected were in the age groups of 0 to 4 years and 5 to 9 years (53 and 27 per cent. respectively), and 188 were males, 116 females. Two hundred and fifty-four patients received serum ; of these, 124 showed some paralysis on admission, and upon discharge this number was increased to 154. Fifty patients received no serum ; of these, 28 showed some paresis on admission and 38 upon discharge. A total of 192 patients were discharged with evidence of paralysis, whereas on admission only 152 showed such physical signs. Twenty-four cases proved fatal (7·8 per cent.), in 18 of which serum was given. Of these 24 fatal cases, 17 patients required the use of the respirator, and 10 of these latter died while in the respirator. The final conclusion was that convalescent serum is of little value in the prevention of paralysis.

C. W. D.

[145] **Neurological and mental symptoms of pernicious anæmia.**—Edward Livingstone Hunt. *New York State Jour. Med.*, 1934, **34,** 99.

Nervous symptoms appear in 80 per cent. of cases, and as they involve all three parts of the nervous system—brain, cord and periphery—the clinical picture appears confused and bizarre. Mental symptoms are common. There may be early mental changes which may precede all other symptoms—apathy, indolence, conduct abnormalities and a lessened capacity for work. Later they assume a more definite form and any type of psychosis may develop. There is no psychosis characteristic of the disease. In older patients the senile type is common. The most usual form perhaps is the socalled paranoid type. The question arises whether these mental symptoms are due to pathological changes in the brain or to toxins generated by the disease. Many authorities insist on the existence of cerebral lesions as the ætiological factor, but they are unable to explain the tendency of many of the cerebral symptoms to disappear under treatment.

C. S. R.

[146] **Sacrococcygeal chordomas.**—E. M. Fletcher, H. W. Woltman and A. W. Adson. *Arch. of Neurol. and Psychiat.*, 1935, **33,** 283.

A chordoma is a tumour which arises from remnants or 'rests' of the embryonic notochord. It is found almost exclusively in two positions in the body, the clivus Blumenbachii and the sacrococcygeal region. In the latter position the tumour may arise in the sacrum and remain there for the most part, it may grow into the pelvis with the formation of a presacral tumour, or it may grow posteriorly, giving rise to a postsacral tumour. The sites of origin are the notochordal remnants found normally in the nuclei pulposi of

the sacrum, and possibly heterotopic foci of chordal tissue anterior or posterior to the sacrum.

In this article the clinical manifestations, surgical treatment and histopathological observations in 10 new cases of sacrococcygeal chordoma are presented, together with a brief survey of the more important literature.

In their general aspects these 10 cases resembled the 75 cases reported up to date. Pain was present in all the cases, and the most valuable examination was digital exploration of the pelvis through the rectum. Preoperative diagnosis of chordoma can be made only through biopsy as roentgenograms may merely suggest the presence of a malignant growth. The specific characteristics of the tumours are: (1) formation of intracellular and extracellular mucus; (2) presence of physaliphorous or huge vacuolated mucus-containing cells; (3) lobular arrangement of the tumour cells, which usually grow in cords; (4) occasional occurrence of vacuolation of the nuclei; and (5) the close resemblance to notochordal tissue as seen in the nuclei pulposi of the intervertebral discs. Surgical treatment is merely palliative.

R. M. S.

[147] **Progressive spinal muscular atrophy of infants (Werdnig-Hoffmann) and its relationship to amyotonia congenita (Oppenheim)** (Ueber die frühinfantile, progressive, spinale Muskelatrophie (Werdnig-Hoffmann) und ihre Beziehung zu Myotonia congenita (Oppenheim)).—O. SCHILDKNECHT. *Deut. Zeits. f. Nervenheilk.*, 1934, **134**, 163.

FOR many years opinions have diverged concerning the relationship or identity of the two diseases mentioned. In England, Greenfield and Stern have supported the view of Slauck and Neumann that the two conditions are identical, while Bielschowsky, Krabbe, v. Zchoczky and Grinker consider them to be separate entities. The author is an adherent of the dualistic theory. Continued progression of the symptoms is considered to be a characteristic sign in the diagnosis of progressive spinal muscular atrophy which begins in early infancy. This appears to be the one symptom which allows of a definite differentiation between the two affections; the time of onset of the disease and the familial incidence are of no importance in diagnosis.

The results of microscopical examination in a case seen by the author showed the following result: Degeneration of the pyramidal cells in the Rolandic area, considerable degeneration of the motor cells in the anterior horn throughout the spinal cord combined with a diminution of their number, also degeneration of peripheral nerves, degenerative alterations in the end-plates of the motor nerves, and simple atrophy of the paralysed muscles.

The real nature of the Werdnig-Hoffmann type of spinal amyotrophy consists in a progressive degeneration of nerve-cells which have primarily been well formed. The effect is a process of involution which starts in the

muscles and in the motor terminal plates. Further anatomical research concerning the termination of the motor nerves will be of value.

M.

[148] **On disturbances produced by lumbar puncture** (Sui disturbi da puntura lombare).—A. PACIFICO. *Riv. di pat. nerv. e ment.*, 1933, **42**, 1.

THE author has systematically examined over 100 subjects to discover the connexions between the vegetative nervous system and disturbances due to intolerance of lumbar puncture.

These disturbances do not occur in subjects with hypotonia, although they are frequent in those with normal tone and hypertonia of the vegetative nervous system and specially in those who show notable variations in the functions of the system. It is not possible to foresee the behaviour of these disturbances from any sign of hyperexcitability such as positive solar reflexes, either spontaneous or elicited.

However, it would seem established that lumbar puncture provokes, independently of modifications of the pressure of the cerebrospinal fluid, an immediate depression of the whole vegetative nervous system which is followed by a second phase of temporary vagal excitation, then of sympatheticotonia of longer duration ; this is almost constant in subjects with the clinical symptomatology of intolerance to lumbar puncture. It should be stated, however, that more data are necessary before it can be affirmed for certain that the disturbances depend on intracranial vasomotor modifications.

R. G. G.

[149] **Graduated jugular compression in the lumbar manometric test for spinal subarachnoid block.**—W. T. GRANT and W. V. CONE. *Arch. of Neurol. and Psychiat.*, 1934, **32**, 1194.

IN order to block the venous return from the head the authors employ a sphygmomanometer with its cuff about the neck. The most significant advantage is the fact that it allows a wide variety of measurable pressures with a corresponding range in the degree of obstruction to the venous return from the head. There is not the uncertainty associated with manual compression, and as a rule the patients do not mind the procedure and breathe regularly, even with the cuff pumped up to a pressure of 100 mm. of mercury. Important too is the fact that the degree of pressure used can be accurately duplicated at will by the same or other observers. When the patient's systolic blood pressure is at a low level the higher pressures are unnecessary and can be dispensed with. There is much less possibility of a sinus caroticus reflex. Many readings at various pressures on the neck can be quickly taken without shifting the patient's position in any way. Before the lumbar punc-

ture is done, an untrained assistant can be shown quickly how to carry out the jugular compression accurately with the manometer in place on the patient. This serves to accustom the patient to the procedure and assures his relaxation and cooperation.

R. M. S.

[150] **A case of familial myotonia atrophica** (Ein familiärer Fall der atrophischen Myotonie).—N. KRYSCHOWA and H. BAJEVSKAJA. *Zeits. f. d. g. Neurol. u. Psychiat.*, 1934, **150**, 508.

A TYPICAL case of myotonia atrophica (dystrophia myotonica) is reported. The patient's father was probably affected by the disease; a cousin is also suffering from abortive symptoms; several relatives have cataract, while others have died in consequence of tuberculosis. The authors of this paper suggest that the disease is transmitted to subsequent generations in an irregular-dominant manner. Cataract is evidently produced by the pleiotrope action of the gene of myotonia atrophica in the affected families. Rudimentary cases may arise as a result of inhibitory and modifying genes or as a consequence of environmental influences.

M.

[151] **Central diffuse 'Schwannosis' in von Recklinghausen's disease** (Zentrale diffuse Schwannose bei Recklinghausen'scher Krankheit).—O. FOERSTER and O. GAGEL. *Zeits. f. d. g. Neurol. u. Psychiat.*, 1934, **151**, 1.

A BOY, age eleven years, had been suffering from headaches, drowsiness, vomiting and diminution of vision for several weeks. On examination, the following signs were observed: A large number of nævi and a smaller number of fibromata on the body, bilateral papillœdema, oculomotor disturbance, pupillary reactions sluggish, mask-like face, spastic paresis of the left arm and leg, slowness in performing active movements and persistent drowsiness.

The patient died six weeks after admission to hospital. The brain only was permitted to be examined. The organ was enlarged, and on section localized enlargement was seen in the corpus striatum and thalamus. On microscopical examination a widespread new growth of longitudinal cells was found, especially in basal ganglia and thalamus. It is stated that these longitudinal cells were cells of Schwann's type or at least a precursory stage of these cells. Neither an accumulation of large glial cells (which is a characteristic finding in Recklinghausen's disease) nor any other tumours were seen. It has to be assumed that in this case primitive cells broke away from the ventricular ependyma and came to a standstill on their way to the periphery. From some unknown cause they later showed blastomic proliferation.

M.

[152] **Recent observations on Simmond's disease** (Neuere Erfahrungen mit der Simmond'schen Krankheit).—K. HERMANN. *Münch. med. Woch.*, 1934, **81**, 1460.

FOLLOWING a description of the main features of Simmond's disease, Hermann recapitulates the symptoms as follows : General wasting and intense cachexia are the characteristic signs and other symptoms may be completely absent. Atypical cases cannot be diagnosed if too much value is attached to the accessory symptoms. Among these are : White pale skin, prematurely aged features, falling out of hair and teeth, amenorrhœa, impotence, low blood-pressure, low blood sugar, apathy, sleeplessness, loss of appetite, feeling of pressure and pain in the epigastrium after a meal, vomiting, also often anacidity and constipation, low body-temperature, sensation of cold especially in the feet, pruritus, sometimes pathological alterations in the sella turcica and xanthomatous infiltrations. A decrease in the metabolic rate, anæmia and eosinophilia are sometimes observed.

These cases are intolerant of insulin, but, on the other hand, they are said rapidly to improve if treated with the hormone of the anterior lobe of the pituitary body (glandunatin, prolan, prashormon, horpan, anteron). The diagnosis is confirmed by such improvement.

C. W. D.

[153] **The exophthalmos of Graves' disease, its experimental production and significance.**—D. MARINE and S. H. ROSEN. *Amer. Jour. Med. Sci.*, 1934, **187**, 565.

CHRONIC and progressive proptosis is shown to be capable of production in immature animals of susceptible species by injection of pituitary extracts and cyanides (preferably methyl cyanide) into rabbits maintained on a diet of alfalfa hay and oats. Its production depends upon two factors, (*a*) the thyrotropic hormone of the anterior pituitary body on the one hand by passively supplying it and on the other by stimulating the pituitary to produce it, and (*b*) the existence of a relative thyroid insufficiency. The maintenance of a normal thyroid function by iodine or thyroxine administration prevents the exophthalmos that would result from the cyanide and pituitary extract. Normally there is a direct physiological balance between the thyroid and the thyrotropic hormone.

As regards treatment, iodine and desiccated thyroid appear the only logical remedies at present available.

The opinion is expressed that Graves' disease probably depends upon a deficiency of some hormone of suprarenal cortex and gonad origin. As the disease-process becomes further unravelled it is probable that the cause of the stimulation of midbrain centres occurring in the disease will be found and that a hormone treatment may become available, viz. a hormone probably of suprarenal cortex or gonad origin.

C. W. D.

[154] **Recurrent laryngeal paralysis in left ventricular failure.**—F. H. KING, W. M. HITZIG and A. M. FISHBERG. *Amer. Jour. Med. Sci.*, 1934, **188,** 691.

THREE cases are discussed of left recurrent laryngeal paralysis complicating arteriosclerosis with left ventricular failure. In two of the cases coronary thrombosis had occurred. The left recurrent laryngeal palsy was due to compression of the nerve between left pulmonary artery, arch of aorta and ductus arteriosus. The cause of the compression is considered to be dilatation of the pulmonary artery due to enlargement resulting from palsy of the left ventricle.

C. W. D.

[155] **Influence of glycine on creatinuria in peripheral neuritis.**—M. J. C. ALLINSON, H. H. HENSTELL and H. E. HIMWICH. *Amer. Jour. Med. Sci.*, 1934, **187,** 560.

A CASE of toxic peripheral neuritis with muscular atrophy and creatinuria is fully described. Daily analyses were made of the urinary excretion of creatinin, creatin, nitrogen and sulphur. In contrast with other cases of secondary muscular atrophy, but resembling those of progressive muscular dystrophy and myasthenia gravis, the injection of glycine definitely increases the creatinuria ; the absence of response of edestin or glutamic acid was also noted. As the patient's condition improved the creatinuria decreased and the reaction to glycine correspondingly diminished.

C. W. D.

[156] **Choked disc and papillitis : Differential diagnosis by the protein content of the aqueous.**—E. SELINGER. *Arch. of Neurol. and Psychiat.*, 1935, **33,** 360.

THE diagnostic aid offered by the author is based on the theory that, since in one condition there is inflammatory swelling while in the other there is non-inflammatory œdema, the protein content of the aqueous should be definitely increased in papillitis while in choked disc it should be within normal limits. This can be expected if one remembers that aqueous is found not only in the anterior and posterior chambers, but in the meshwork of the vitreous, and that the circulation of the aqueous is very slow. Products of inflammation can therefore reach the anterior chamber by a process of diffusion from the posterior half of the eye. The normal amount of protein in the human aqueous is about 0·02 per cent., and for its estimation the trichloracetic acid test of Mestrezat and Magitot is employed. The method is rapid and simple and aspiration of the aqueous from the anterior chamber is less dangerous than a spinal puncture.

In a series of 11 cases the albumen content of the aqueous was found to

be 0·02 per cent. or less—that is, normal—in seven cases of papillœdema, while in papillitis of inflammatory origin it was 0·04 and 0·10 per cent.—that is, from two to five times the normal amount. In papillitis of non-inflammatory origin due to transudation of fluid rich in albumen, as in renal retinitis, the protein content was 0·03 and 0·04 per cent.—that is, about twice the normal amount, an increase that is also definitely pathological. The protein determination of the aqueous enables the observer, therefore, to differentiate choked disc from papillitis. In the writer's opinion the clear-cut results obtained and the theoretical soundness of the principles involved warrant the use of this test as an additional aid in the differential diagnosis of papillœdema and papillitis.

R. M. S.

[157] **Changes in cutaneous localization in a pedicle flap.**—B. Douglas and L. H. Lanier. *Arch. of Neurol. and Psychiat.*, 1934, **32**, 756.

A case is presented in which a pedicle flap from the right nasolabial region was substituted for the right four-fifths of the lower lip, the latter having been destroyed in an accident. The dissection of the flap resulted in denervation of the outer fourth of its free end, but the original nerve-supply entering from the pedicle was left intact and sensations from this sensitive portion were referred mainly to the upper lip and cheek.

Results of localization tests carried out on the sensitive part of the flap revealed a progressive shift of 'local sign' from the upper lip and cheek to the lower lip. The development of reorientation required several months. A transitional stage was observed, involving considerable confusion and a tendency to localize sensations in an area intermediate between the old and the new locations of the flap. This tendency was interpreted as a resolution of the conflict arising between the old and the new orientation habits.

No 'reference' was observed on return of sensibility to the denervated portion of the pedicled flap. The ability to localize sensations within this area began to return within six weeks and was apparently coincident with the ingress of nerve-fibres from the edges of the chin and lip to which the flap was attached. These results clearly indicate that 'local sign' depends mainly on habit-formation, involving the association of cutaneous impulses with the kinæsthetic impulses.

R. M. S.

PROGNOSIS AND TREATMENT

[158] **A special form of tract disease (subacute combined degeneration) of the spinal cord and its therapy** (Über eine besondere Form funikulärer Spinalerkrankung und deren Therapie).—E. Illing. *Münch. med. Woch.*, 1934, **81**, 1265.

The author describes cases of subacute combined sclerosis in which there was no disorder of the blood, no achlorhydria and no psychosis. In several recent

cases of this type good results have been obtained by treatment with yeast continued for four to five months.

A definite cure resulting from this treatment can be confirmed only by prolonged observation. Complete recovery will probably not be attained as those tissues in the spinal cord which have already been destroyed cannot recover. The probable cause of the spinal cord lesion in these cases, the author maintains, is an avitaminosis, as no sign of pernicious anæmia could be detected.

M.

[159] **The treatment of multiple sclerosis by electropyrexia.**—C. A. Neymann and S. L. Osborne. *Jour. Nerv. Ment. Dis.*, 1934, **79**, 423.

Twenty-five cases of multiple sclerosis have been treated by hyperpyrexia, produced by diathermy, radiothermy, and the electric blanket. Forty-four per cent. were much improved. An additional 40 per cent. were improved to a lesser degree.

During the time interval in which these cases were observed after treatment, all remained stationary. This interval varied from a few weeks to 18 months. One case returned to the hospital with an exacerbation of symptoms. Two patients died, one as the result of treatment.

No claims are made for the ultimate success of this therapy.

R. G. G.

[160] **The treatment of status epilepticus** (Zur Behandlung des Status epilepticus).—F. E. Kumze. *Münch. med. Woch.*, 1934, **81**, 1430.

In a case of status epilepticus which seemed to be desperate a very good result was obtained by giving both an intravenous and an intramuscular injection of 5·5 c.cm. coramine. In a previous paper by Salerni (*Minerva Medica*, 1934, i, 324) 15 cases of status epilepticus are recorded as relieved by coramine. Three of these cases were especially striking as they had appeared extremely severe before the injection was given.

M.

[161] **The diagnostic and prognostic significance of creatin–creatinin metabolism in various myopathies before and after amino-acid therapy.**—H. H. Beard, C. J. Tripoli and J. E. Andes. *Amer. Jour. Med. Sci.*, 1934, **188**, 706.

Thirty cases of various myopathies have been studied as regards the creatin and creatinin excretion before and after glycine therapy. Both subjective and objective clinical improvement was noted in 10 patients, and subjective improvement only in seven patients whose creatin excretion rose from

50 to 200 per cent. above that of the control period. In four other cases the progress of the disease appeared arrested. No clinical improvement resulted in 13 patients, nine of whom were suffering from neuromuscular conditions in which increased creatinuria was absent or less than 50 per cent. above that of the control period. The result of these studies confirms the authors' view that both creatin and creatinin may have an exogenous origin from the amino-acids of the diet. Glycine therapy had little effect upon the distribution of nitrogen in the urine of three cases in the form of the total urea, ammonia, uric acid and undetermined nitrogen. The increase in creatin and creatinin excretion was affected in only one of these cases. Some evidence is presented that the lower motor neurone with the muscle it innervates must be functionally intact for creatin formation from amino-acids.

C. W. D.

Psychopathology

PSYCHOLOGY

[162] **The colour preferences of 1,032 young children.**—Thomas R. Garth and Electa Penina Porter. *Amer. Jour. Psychol.*, 1934, **46**, 448.

Older children were found to have a more definite discrimination of feeling of difference between colours than younger children. This discrimination tends to increase with age. The boys on the whole show this more than girls. Even children of a very young age like any colour better than white. Yellow tended to be the least esteemed of the colours, and red was thought highly of by all age-groups. On the whole blue tended to be more esteemed with increasing age, and the divergence between it and yellow tends also to increase with age. There is a tendency for the ratios between the 'pulls' of red and green, and of orange and violet, to decrease with age.

C. S. R.

[163] **The rôles of the situation and adrenalin in the induction of emotion.**—Hadley Cantril. *Amer. Jour. Psychol.*, 1934, **46**, 568.

In the author's experiments an analysis of the emotional experiences aroused shows that there is a different pattern of affective dimensions for fear and disgust. The variations noted between the organic-kinæsthetic disturbances concomitant with fear and disgust suggest that the physiology of different types of emotions should be made more explicit if the rôle of the autonomic nervous system in the development of emotions is to be known. The adrenalin syndrome is more typical of the bodily reactions in fear than in disgust. The sensory concomitants of the emotional experience are secondary to the experience conceptualized as a whole. The awareness of some object or

situation around which the emotion is intellectually organized is the immediate cause of the emotional experiences as reported by the observers. It is suggested that the 'usual emotional state' involves a primary autonomic reaction and an intellectual content. The genuine emotions elicited by the injection of adrenalin in the experiments of others may be due to the fact that the autonomic reactions themselves were conceptualized by the observers as emotional *situations*. It is thought also that the quality of an emotion is primarily dependent upon the attitude aroused in the observer by the stimulus. It may be implied from the introspections that the observer's attitude is partially due to his experiential background. Again this attitude may be somewhat determined by characteristics of temperament.

C. S. R.

[164] **Dissimilar identical twins.**—R. L. JENKINS. *Amer. Jour. Orthopsychiat.*, 1935, **5**, 39.

A DEVELOPMENTAL history and a report of the physical and psychological examination of two girls of 10 years of age who are identical twins are given. It is pointed out that seldom in the study of human beings can we attain such a satisfactory control as by the observation of one twin as subject and an identical twin as control. It is the writer's belief that brain injury at birth is a much more common occurrence than usually realised and that careful study will reveal some indication that many children who are characterized as nervous, hyperactive, fidgety, dull, or clumsy, are so by reason of organic brain damage of mild degree, occurring either at birth or during an infectious period in infancy. It is also thought that twins, in particular identical twins, may present their own special problems of adjustment by reason of being twins. Probably being one of twins has its special compensations and advantages but if for any reason one of the twins gains ascendancy over the other the unfavourable comparison between them may be damaging to the less successful. It would seem to be particularly damaging with identical twins.

C. S. R.

[165] **The psychodynamics of maternal rejection.**—H. W. NEWELL. *Amer. Jour. Orthopsychiatry*, 1934, **4**, 387.

THIS study was made from 33 children who were selected on the basis of a definite statement by the mother that the birth of the child was unwelcome to her. It shows that maternal rejection is primarily due to the mother's unhappy adjustment to marriage. This in turn is usually a result of immaturity and emotional instability on the part of one or both parents. These mothers express their rejection by undisguised forms of neglect and cruelty,

by overprotection as a reaction to feelings of guilt, or by an inconsistency in handling. Feeling more insecure than the average child, such children are impelled by the necessity of extracting from their parents and other adults expressions of being welcome or important. Thus they are peculiarly sensitive to attention. They derive a certain satisfaction from having their mothers upset about them, and much of their specific behaviour represents a discovery on their part of what their mothers fear the most. The conclusion is that maternal rejection is an important factor underlying the insecurity which often accompanies the clinical picture of emotional instability.

C. S. R.

PSYCHOSES

[166] **A pharmacodynamic investigation of the autonomic nervous system in schizophrenia.**—H. Freeman and H. T. Carmichael. *Arch. of Neurol. and Psychiat.*, 1935, **33**, 342.

In 24 normal male subjects and in 72 schizophrenics free from detectable organic disease, the reaction of blood-pressure and pulse-rate to the intravenous injection of 0·05 mg. of epinephrine was investigated. It was found that the maximum change was attained within the first minute after injection. The mean rise in systolic pressure in the schizophrenics was 43·8 mm., and in the normal subjects, 56·2 mm. The difference between these two values is statistically significant and indicative of a diminished reactivity to the drug in the psychotic group. In the case of the diastolic pressure the reaction was quite variable and the mean change in both patients and normal subjects was slight. There was, however, a greater tendency for the patients to show a rise in the diastolic pressure. In them the mean increase in pulse-rate was 13·6 beats per minute, and in the normal subjects 16·3 beats. No correlation was found between the extent of the reaction and the initial levels or between the reaction to epinephrine and the rate of oxygen consumption, nutritional index, schizophrenic subclass, psychiatric status, or emptying time of the colon. Age apparently had a slight effect in lessening the total degree of response. No characteristic syndrome of autonomic balance was found in schizophrenia.

C. S. R.

[167] **The nature of schizophrenia.**—G. M. Davidson. *Medical Record*, 1934, **150**, 660.

Schizophrenia is not regarded as a constitutional disease or a psychogenic reaction, but a disorder of the total personality resulting in dissociation of functions up to complete dissolution, and, on the other hand, capable of showing remissions. While the causes are undoubtedly multiple, it is said that the constitutional element (somatic) responsible for the production of

the disorder is to be sought at the level of the reticulo-endothelial system, particularly at the capillary endothelium. Experience will furnish the exciting or precipitating (relatively causative) factors. It may also be responsible for quickening the individual's predisposition, such as heredity. It is assumed that schizophrenic manifestations are biochemical in their source. The neuropathology is primarily expressed in capillary encephalopathy. The extraneural pathology is regarded as an outcome of capillary incretovisceropathy.

C. S. R.

[168] **Hereditary and environmental factors in the causation of dementia præcox and manic-depressive psychoses.**—Horatio M. Pollock, Benjamin Malzberg, and Raymond G. Fuller. *Psychiatric Quarterly*, 1934, **8**, 553.

In the discussion of the application of Mendelism to the inheritance of manic-depressive psychoses, reasons are given for doubting the theoretical basis underlying the application of such laws to mental disorders. These reasons appear more cogent in connexion with the inheritance of dementia præcox. It should be noted that those methods which enable the observer to classify the parental generations in plants and animals in Mendelian terminology, are largely inapplicable in the case of man, and the genotypes representing dominance among the latter are therefore a matter of supposition rather than of observation. This uncertainty in the parental generation affects the validity of the interpretations of the filial generation. In the second place, as pointed out by Bleuler, there is doubt whether dementia præcox is a unitary disease, and it is possible that the ætiology may differ in the several types. Furthermore, there is reason for believing that environmental agencies affect the origin and course of the disease and thereby influence the totals of affected offspring. The fact that the latter are so much less than the totals required by Mendelian theory points to the probability that though inheritance plays a rôle in the transmission of these diseases, environmental influences nevertheless are also important factors.

C. S. R.

[169] **Phytotoxic index. 1. Results of studies with sixty-eight male schizophrenic patients.**—W. Freeman, J. L. Mooney and R. R. Small. *Arch. of Neurol. and Psychiat.*, 1934, **32**, 554.

The use of viable plant protoplasm as a toxicity test was first recorded by Kahlenberg and True and was applied to psychotic patients by Looney and Macht for the determination of toxicity in depressed patients. The present study deals with the inhibitory effects of defibrinated blood and diluted urine on the growth of the roots of *Lupinus albus* seedlings, the solutions being

obtained from schizophrenic patients and from normal male subjects. No significant differences were found in the inhibitory action of whole blood between male schizophrenic patients and the normal male controls. Likewise no abnormal inhibitory action on the growth of these seedlings was demonstrable by using a 2 per cent solution of diluted urine. No existing correlation was found with the phytotoxic indexes of the solutions of blood or urine of the patients and their age, period of hospitalization or subtype of schizophrenia.

R. M. S.

[170] **Cardiovascular system in schizophrenia studied by the Schneider method.**—J. M. Linton, M. H. Hamelink and R. G. Hoskins. *Arch. of Neurol. and Psychiat.*, 1934, **32**, 712.

The Schneider test, which purports to afford a measure of cardiovascular fitness, was devised to aid the flight surgeon in judging the degree of physical fitness of military aviators. Its application to 25 members of a hospital staff and to 99 schizophrenic patients gave a score which indicated a significant lowering of physiological fitness in the schizophrenic patient, but the test apparently mirrors the degree of physical activity rather more than the intrinsic degree of normality.

R. M. S.

[171] **The ætiology of so-called schizophrenic psychoses, with special reference to their occurrence in twins.**—Aaron J. Rosanoff, Leva M. Handy, Isabel Rosanoff Plesset and Sandye Brush. *Amer. Jour. Psychiat.*, 1934, **91**, 247.

The main object of this contribution is to report a study of 142 pairs of twins with so-called schizophrenic psychoses in one or both of the twins in each pair. Instances of similar psychoses, quantitative dissimilarity (i.e. dissimilarity of age of onset, particular symptomatology, course, outcome, etc.), qualitative dissimilarity (i.e. one twin having a schizophrenic psychosis and the other some neuropsychiatric condition belonging to a different clinical group) and total discordance (i.e. one twin having a schizophrenic psychosis and the other not affected at all), are to be found among both monozygotic and dizygotic twins, but not with the same relative frequencies. It is suggested that in the ætiology of schizophrenic psychoses hereditary factors seem to play an important part. In themselves they are often inadequate; that is to say, they do not suffice to produce a schizophrenic psychosis. The pathogenic effect of these factors is not highly specific. Others often play a part with resulting dissimilarities of manifestation or total discordance of findings even in monozygotic twins. Hereditary factors are not always present, therefore are not essential in the ætiology of these

psychoses. A more detailed scrutiny of the material suggests the possibility of separating out from amongst the schizophrenic psychoses a large group of cases which seem to occur on a basis of partial decerebration, mainly of traumatic or infectious origin. A cerebral birth trauma is a prominent factor.

C. S. R.

[172] **Concerning the cause of death in certain psychoses.**—G. M. Davidson. *Amer. Jour. Psychiat.*, 1934, **91**, 41.

From his observation and evaluation of data the author concludes that the question of loss of weight as a result of refusal of food by some patients cannot explain the rapid physical failure, since in most cases sufficient nourishment is provided by various ways of feeding; improper assimilation of food may be an aggravating factor. Considering the state of cerebral capillaries, we may perhaps assume that the trophic changes, the rapid bodily decline and fluctuation of temperature are of central origin and due to hypothalamic dysfunction, as suggested by Steck and discussed by Dreyfuss and Scheidegger. The capillary dystonia may account for the fibrosis encountered in various organs and glands, and may perhaps be partially the source of the non-specific histopathology of the brain, viscera and glands. The cause of death in these cases appears to be capillary toxicosis as a result of liberation in the body of toxic substances which are tentatively identified with the H-substances of Lewis. Such toxicosis leads to an extreme opening of visceral capillaries, and also handicaps regeneration of the blood, which together result in arterial oligæmia and consequent cardiovascular collapse.

C. S. R.

[173] **Marihuana intoxication: A clinical study of *cannabis sativa* intoxication.**—Walter Bromberg. *Amer. Jour. Psychiat.*, 1934, **91**, 303.

Marihuana is the Latin-American name for a cigarette preparation of the hemp plant. The active principle is *cannabis sativa*. Mental states produced by the drug constitute a fairly definite clinical entity. The drug is a 'breeder of crime' only when used by psychopathic types in whom the drug allows the emergence of aggressive, sexual or antisocial tendencies. The clinical pictures observed can be divided into three groups: (1) acute intoxications; (2) emotional reactions to the intoxication features; (3) toxic psychosis due to admixture of drug effects and basic psychosis (manic-depressive, schizophrenic, etc.). Psychological factors are of importance in the emotional reaction of an intoxication, bringing various personality forces and conflicts to the surface. The psychological and physiological effects of *cannabis* intoxication are: (1) a change in time perception, reality feeling, somatic,

sensory and motor phenomena; (2) disturbance of consciousness with difficulty in memory retention; (3) change in subjective evaluation of perception of visual, tactile, proprioceptive, auditory experiences because of disintegration of sensation to a primitive level of perception. The result of this change in body-model (Körperschema) perception may be expressed in feelings of unreality that appear as panic-states in narcissistic or hysterical individuals; (4) a mood reaction consisting of elevation with periods of sudden boisterous laughter; (5) a primary stimulus to the impulsive life with direct expression in the motor field.

C. S. R.

[174] **Bell's mania (acute delirium).**—S. H. KRAINES. *Amer. Jour. Psychiat.*, 1934, **91**, 29.

SOME survey of the literature on the subject is made and an illustrative case reported and discussed. Those who feel that this is a manic-depressive reaction still isolate it as a 'delirium mania,' while those who insist that it is of toxic infectious origin also feel that it is markedly different from the usual run of delirious reactions. There is also the tendency to classify the illness according to the prognosis, those patients who become well being grouped as manics and cases terminating fatally being regarded as infections. Either way the disease stands out as a clinical syndrome. In the author's case the only laboratory finding was a high spinal fluid pressure, the fluid otherwise being negative. Treatment is of interest, as the great excitement causes a strain on the organism. Sodium amytal is especially recommended as a non-toxic drug in order to obtain, if possible, the much-needed rest.

For the sake of clarity in the studying of this group, and until more definite findings are brought forth, it is suggested that these cases be called Bell's mania, after the original observer.

C. S. R.

[175] **Further studies in the respiration of psychotic patients.**—ERICH WITTKOWER. *Jour. Ment. Sci.*, 1934, **80**, 692.

THE type of respiration was examined in 302 patients. Out of 101 schizophrenics, 81 were regular and 20 irregular breathers; out of 101 cases of affective psychoses, 69 were regular and 32 irregular breathers. The meaning of the prevalence of regular breathers among the schizophrenics compared with normal subjects is discussed in reference to former investigations by Golla and Antonovitch; a definite explanation cannot be furnished. The ventilation was examined in 123 schizophrenics and 40 normal subjects. Often the respiration of the former was abnormally shallow and frequent. As to the total ventilation, the shallowness of respiration is mostly compensated, or overcompensated for by frequency of respiration. Sometimes

the mechanism of compensation does not succeed. The alveolar carbon dioxide pressure was, in five of seven cases of schizophrenia, increased; in one case a considerable increase was noted.

C. S. R.

PSYCHOPATHOLOGY

[176] **Alzheimer's disease. A clinicopathological study of five cases.**—D. ROTHSCHILD. *Amer. Jour. Psychiat.*, 1934, **91**, 485.

ALL patients showed profound intellectual deterioration, motor unrest, affective changes and a disorder of speech. The age of onset ranged from 44 to 64. The duration varied from two and a half to 26 years. Certain observations suggested that exogenous factors could accelerate the progress of the disease. An increase of muscle tonus occurred in four cases. Apraxia and visual agnosia were noted in one case and cerebellar signs in another. Symptoms suggestive of vegetative involvement were not uncommon. The chief histological changes were non-specific cell lesions, diffuse cell losses, senile plaques and neurofibril lesions of the Alzheimer type. These alterations showed a considerable degree of parallelism in the cerebral cortex but not elsewhere. The glial response was usually active. Hyaline-like vascular lesions were found in all cases. All parts of the cortex were affected. In most instances parietal lobes, cornu ammonis and temporal lobes presented the severest damage. As a rule there was no close correspondence between the areas of greatest involvement and the individual cytoarchitectural fields. The changes were usually most pronounced in the third layer of the cerebral cortex. The basal ganglia often showed considerable involvement. The differences and resemblances between Alzheimer's disease and senile dementia and the various theories regarding the origin of the former are discussed. Probably the clinicopathological picture of Alzheimer's disease occurs in a rather heterogeneous group, the individual members of which may owe their origin to different ætiological agents. A close relationship to senile dementia is suggested.

C. S. R.

[177] **Concerning Pick's disease.**—EUGEN KAHN and LLOYD J. THOMPSON. *Amer. Jour. Psychiat.*, 1934, **13**, 937.

PICK's disease and several theories concerning it are briefly reviewed. With regard to differential diagnosis, neurological and serological findings, encephalograms, and clinical picture and history will usually rule out or confirm such possibilities as general paresis, arteriosclerotic brain disease or brain tumour; but differentiation from Alzheimer's disease is a more difficult problem. No one symptom or finding is characteristic of either disease; therefore diagnosis must be based on the total findings and the shades of

variation found within certain specific symptoms. Memory defect is earlier and more widespread in Alzheimer's disease, and later on it may be practically obliterated, whereas in Pick's disease some evidence of retention can be noted until late. Encephalograms in the former disorder show broad stripes of air over the whole convexity, while in Pick's disease the air is almost exclusively in the frontal and temporal regions in the shape of a large confluent mass. Other less important differential points are: some cases of Alzheimer's disease have been reported at an earlier age onset than any reported case of Pick's disease. In the evolution of the disease-processes it appears that in Alzheimer's disease adequate social behaviour and composure are preserved a little longer in spite of early decrease in memory. The stage of hyperactivity followed by hebetude may be somewhat more clear in Pick's disease. Focal signs, convulsions, etc., are more common in Alzheimer's disease, and spontaneous speech, logoclonia and confabulation are also more characteristic.

C. S. R.

[178] **Mental disorders related to childbirth.**—G. FRUMKES. *Jour. Nerv. Ment. Dis.*, 1934, **79**, 540.

MENTAL disorders which follow pregnancy and childbirth are not specific entities, but should be classified like other mental disorders.

Seven cases of mental disorders which were either precipitated or aggravated by pregnancy or childbirth are cited. Two of these were manic-depressive psychoses, manic type; two dementia præcox, paranoid type; two dementia præcox, catatonic type; and one psychoneurosis, psychasthenic type. In four the psychosis which developed directly after childbirth was the first attack, in two it occurred during the course of a mental disorder, but aggravated the condition, and in one it precipitated a new attack of manic-depressive psychosis.

Care should be taken not to include in the group 'Psychoses with Other Somatic Diseases' cases which belong in other groups. Cases are frequently unjustifiably classified as 'Psychoses with Other Somatic Diseases' merely because the patient had a severe labour or developed a minor infection, or gave wrong answers to questions testing the sensorium at the period when the psychosis was first noticed. These disorders present many interesting psychological problems, some of which are briefly discussed. A relatively frequent symptom is the development of a delusion that the baby is dead. In three of the above-mentioned cases this delusion was shown.

It is emphasized that pregnancy, lactation and childbirth call for psychological as well as physiological adjustment; for example, patients with an unfavourable psychological 'make-up' may develop the delusion that the child is dead as a means of denying childbirth; some even go so far as denying the marriage itself.

R. G. G.

[179] **Psychic disturbances after head injuries.**—Paul Schilder. *Amer. Jour. Psychiat.*, 1934, **91**, 155.

In 35 selected cases of serious head injuries there often followed a state of deep clouding of consciousness with some general resistiveness. This attitude is partly psychic and partly based on organic neuromuscular components. In the next stage there is clouding of consciousness and far-reaching disorientation in time and space. The perceptive function is retarded, the 'Gestalt' function deeply impaired, the central personality reacts with helplessness and confusion, and there is much memory disturbance and impairment of judgement. This period can be short or last for several weeks, perhaps developing after a free interval. The picture of a Korsakoff psychosis may remain, but alcohol is not here an unvarying factor. Post-traumatic confusion is rather impersonal and is more of the organic type which affects primarily the ego in a psychoanalytic sense. Amnesia of the accident is the rule which may be complete and retroactive for a shorter or longer period. This may clear up or be persistent and may be the only lasting psychic symptom. The patients are often not concerned about their injuries. The mood is often characterized by resistiveness; apathy and bewilderment may follow; depression may come about or manic states supervene. Changes in the mood are due to the general reaction pattern of the brain, to a Korsakoff state or definite cerebral lesions. Lesions of the ventricular grey matter are partially responsible for the changes in consciousness and participate in connexion with the cortical lesions in the final elaboration of the disturbances in memory and judgement. Special emphasis is laid upon the diffuse congestion of all parts of the brain associated with universal perivascular hæmorrhages. The material does not offer any proof for the traumatic origin of schizophrenia, but catatonic symptoms may be a sign of local lesion. Head injuries may directly provoke manic and depressive pictures, but it is not the exclusive cause of manic-depressive psychosis. Emotional disturbances and changes towards schizoid, psychopathic and epileptoid trends may be the final outcome of the organic disturbance. In minor injuries the traumatic scene has a definite significance and may be relived again and again in dreams, hallucinations and phantasies, and may be interwoven with paranoid attitudes.

C. S. R.

[180] **The psychogenic factors in asthma.**—C. P. Oberndorf. *New York State Jour. Med.*, 1935, **35**, 41.

The effect of emotional factors on the respiratory apparatus has been described in such conditions as sniffing tics, nervous cough, paroxysmal breathing and asthma. The common cold in certain individuals seems to be preceded by (induced by ?) mental depression, and pain referred to the accessory sinuses has in recent years become more and more a focussing point for emotional conflict. The psychogenic induction of asthmatic attacks by

the smelling of artificial flowers and by the fear of an attack in particular places has frequently been observed. Psychoanalytic literature contains several cases where detailed studies of unconscious mechanisms have been made and the close resemblance between the symptoms of stuttering and silent sobbing and asthma becomes apparent. Some have regarded asthma as an anxiety hysteria, and others have interpreted the attack as a reaction to separation from the mother upon whom the patient was strongly fixated in a phase of a passive protectivity. When attacks of asthma, originally caused by a psychic stimulus, have continued over a long period of time, they may produce actual organic change in the finer tissue structure of the bronchioles. A case-report is given with the analytic interpretation.

C. S. R.

[181] **Lumbar puncture and the cerebrospinal fluid in 2,000 cases of mental deficiency.**—K. C. L. PADDLE. *Jour. Ment. Sci.*, 1934, **80**, 674.

IN 1,500 of these cases, observations were made on the after-effects of lumbar puncture. Seventeen per cent. developed lumbar puncture symptoms; 14·2 per cent. of the patients vomited; 6·8 per cent. had headache and 0·73 per cent. pyrexia up to 101° F. The incidence of vomiting was nearly twice as high in females as in males, being 20·1 and 10·5 per cent. respectively. It was also higher in the feebleminded group than in the imbecile or idiot group. There was a distinct relationship between the rate of flow of the cerebrospinal fluid and the incidence of post-lumbar puncture symptoms. Where the former was rapid, the incidence tended to be high, and where it was slow, the incidence was relatively low. The tests used on the fluid were the Wassermann reaction, cell estimation, Pandy, Lange's colloidal gold, and the acetic anhydride test of Boltz. Many pseudo-positive Pandy and Boltz reactions were given by fresh cerebrospinal fluid. Of the 2,000 fluids examined, 55 or 2·7 per cent. were abnormal. The Wassermann reaction was positive in 19 cases, excess of cells existed in 32, excess of globulin in 44, and the colloidal gold reaction was positive in 30. Twenty-three per cent. of congenital syphilitics had abnormal fluids. The incidence of abnormal fluids was higher in those cases of mental deficiency complicated by epilepsy or paralysis than in those free from such complications. The fluid of only one out of 54 mongolian defectives gave a positive Lange's colloidal gold test; in the remaining 53, the cerebrospinal fluid was normal in every respect.

C. S. R.

[182] **Appearance and motor behaviour of primary mental defectives** (Aspetto e comportamento della motilita dei frenastenici).—G. PINTUS. *Riv. di pat. nerv. e ment.*, 1933, **42**, 47.

THE author presents a study of the movements of primary mental defectives. He describes all the alterations of gait and other instinctive or habitual acts

shown by these patients. He gives evidence of the similarity of those abnormalities of gait as shown in 'motor profile' (by cinematograph study) to other neurological syndromes, especially those of chronic epidemic encephalitis. The author believes that while it is impossible to place any lesion which shall account for the particular derangements of movement, it would seem likely that a failure of the fronto-extrapyramidal system to function fully is responsible. Three varieties of movement defect are described: (1) The slow, rigid, heavy type, simulating chronic epidemic encephalitis, and the pithecoid type of Hombinger; (2) the slight type, fairly agile but with some rigidity and clumsiness, simulating the paratonic type of Dupré; (3) the restless type, quick but unprecise movements which are not carried to their proper conclusions, similar to the type described by Gurewitsch as due to insufficiency of the frontal motor areas.

It is thought from the point of view of movement (kinesis) these cases may be divided into hypokinesis, parakinesis and hyperkinesis.

R. G. G.

[183] **Encephalography in abnormal mental states with diabetic insipidus.**—P. G. Schube. *Jour. Nerv. Ment. Dis.*, 1933, **78,** 453.

Three patients admitted for investigation of abnormal mental states were found to suffer from diabetes insipidus, and in order to investigate whether any evidence of lesion of the third ventricle could be detected encephalography was performed.

The procedure in the first case alleviated the symptoms of the diabetes insipidus, but accentuated the abnormal mental state; in the second case it alleviated both; in the third both remained unchanged.

R. G. G.

[184] **The barrier between the blood and cerebrospinal fluid.**—W. Malamud, W. R. Miller and B. M. Mullins. *Jour. Nerv. Ment. Dis.*, 1934, **79,** 125.

The bromide distribution ratio as determined by the water test was studied in 643 cases of mental disease, with the following results:—

(*a*) The schizophrenias showed a predominance of quotients above 320, a smaller amount ranging between 320 and 280 and very few below 280. (*b*) The psychoneuroses, psychopathic personalities, and paranoid states showed a predominance of quotients between 320 and 280, with some cases above and below these limits. The manic-depressive psychoses followed the same pattern, but with less of the cases above 320 and more below 280. (*c*) The toxic psychoses and the cases of untreated general paralysis showed quotients mainly below 280 and none above 320.

In 530 of the cases the protein content of the cerebrospinal fluid was

determined simultaneously with the permeability quotient. It was found that: (*a*) There was a tendency toward a general correlation between the two values, but this was not consistent; (*b*) in the cases of organic psychosis and in the schizophrenics this correlation was of a higher degree than in the psychoneuroses and manic-depressive psychoses.

R. G. G.

[185] **Gestalt function in visual motor patterns in organic disease of the brain.** —L. Bender. *Arch. of Neurol. and Psychiat.*, 1935, **33**, 300.

Visual motor experiments and tests consisting of the simple copying of selected figures from Werthheimer's series have proved of value in the study of the genesis and nature of the Gestalt function in visual motor behaviour and of integrated mental disturbances in the visual motor field in various mental and nervous diseases.

In normal children the visual motor Gestalten arise generally from the integration of motor impulses and the biological characteristics of the visual fields, and in development pass through definitely determined maturation stages. In organic disease of the brain associated with sensory aphasia the characteristic feature is the reversion to the primitive response with the simple closed loop, which is perseverated with resulting distortion of the integrative principle.

In schizophrenia schizoid dissociative features may be demonstrated by this test. In mental deficiency there are several different types of retardation in the maturation of the visual motor Gestalten dependent on determinable factors.

In the present study of disturbances in the visual motor Gestalten in organic disease of the brain, the following conclusions have been reached: In dementia paralytica there may be evidence of poverty of impulses, with micrographia, fragmentation and separation, especially in cases associated with lethargy or dulness. In the expansive types of dementia paralytica there is a tendency to substitute letters, numbers, figures or personal material, such as the patient's initials, for parts of the figure while the Gestalt as a whole appears intact. This may be akin to confabulation. There may be confusional features in which the figure is disorientated on its background. In nearly all cases the concept as a whole is preserved, but something of a secondary nature happens to the concept before reproduction. Fairly well compensated cases of dementia paralytica show productions that are formalistically but impersonally perfect, but these productions are almost invariably further marred by one or another tell-tale feature suggesting one of the features of dementia paralytica already mentioned or tendencies to primitive reversions.

In alcoholic psychoses the disturbances in the Gestalt function are best approached with an understanding of the severe alcoholic encephalopathies,

in which the progressive lesion in the brain may lead to death. This is associated with a deep clouding of consciousness, with perceptive difficulties resulting in incompletely perceived Gestalten, and in motor difficulties with increased impulses to rhythmic movements. By this combination the visual motor Gestalten in copied figures are profoundly disturbed, and the figure is reproduced incompletely and distorted by perseverated strokes. In Korsakoff psychosis, with less clouding of consciousness, the motor impulses to perseverate tendencies in the figure may be more prominent. In the chronic alcoholic hallucinatory states the Gestalt, as a whole, may be well preserved, but the outlines are hazy, perhaps partly from tremulousness and partly from the motor impulse to reiterate the lines. In the alcoholic confusional states there are less marked motor difficulties, but the perceptive difficulties are in the foreground and show disturbances of integration of the parts into the whole and in the orientation of the figure on its background.

In traumatic psychoses the acute confusional stages following the trauma are characterized by clouding of consciousness, with difficulties in the synthesis of the perception and the Gestalt function. Visual motor Gestalten show reversions to primitive features. Especially there is seen the disorientation of the figure on its background. As the clouding of consciousness clears and a chronic Korsakoff picture is left, there may be typical Korsakoff features characterized by correct grasp of the figure as a whole, and its orientation on its background, with a tendency to some reversions to primitive responses and bizarre replacements of parts of the figure without interference with the structure of the Gestalt.

In acute confusional states the disturbance resolves itself into difficulties in the integration of the parts of the figure to the whole, and of the whole figure to its background or situation. Tendencies to primitive reversions are secondary to this primary difficulty.

R. M. S.

PROGNOSIS AND TREATMENT

[186] **Anxiety : its nature and treatment.**—HENRY HARRIS. *Jour. Ment. Sci.*, 1934, **80,** 705.

THE psychiatrist is concerned with four moods or affective-emotional states and their permutations and combinations. These may be considered in terms of conflict ; anxiety as unsolved conflict, elation as solved conflict, depression as unsolvable conflict, apathy as the most complete solution of conflict. Conflict may be considered in terms of the tensions interacting to cause conflict and the balance between such tensions. In anxiety the tension is a rising one, in elation it is a falling one, in apathy it is low and is continuously being discharged, in depression it is extremely and continuously

high and amounts to a sort of spasm. It is suggested that these, somewhat speculatively, might be considered to be metabolic, visceral and autonomic tensions. The plan of treatment should be : (1) The problem at hand to be resolved clearly into terms of anxiety ; (2) to find an adequate outlet, not conflicting with social demands, for the energy that is bound up in the anxiety ; (3) failing this, the individual must be ' cotton-wooled ' and spared anxiety-producing and tension-increasing stimuli ; (4) as a last resource, ' supportive ' treatment must be used to combat anxiety which is completely unavoidable ; this, by diminishing the total energy of the individual, relieves the painful hypertension of individual segments or viscera. Of the four steps in treatment, the last two are far from ideal, but, under present conditions, often enough the only methods available. In any case it is unwise to despise or neglect anything that may help to diminish the particular form of anxiety and conflict that is doomed to lead nowhere ; for the problem of anxiety is after all the problem of unhappiness.

C. S. R.

[187] **Prolonged narcosis in mental disorder : results of treatment in 107 cases.**—Rolf Ström-Olsen and Muriel L. M. McCowan. *Jour. Ment. Sci.*, 1934, **80**, 658.

Here there are a summary and comments on the results obtained on 49 cases of schizophrenia (all types), 45 of manic-depressive psychosis, and 13 psychoneuroses. A total number of 128 treatments were carried out. In 117 of these somnifaine was used, in nine veronal, and in two dial. The authors realize that they are reduced to theory and speculation in so far as the modus operandi of prolonged narcosis is concerned. From the purely clinical standpoint, it would seem that the therapeutic action may depend on two factors. The first is the removal of inhibition ; the second is the actual state of narcotic sleep, in which one may speak of a ' central ' anæsthesia in the true sense of the word. During this period there is a complete abolition of the effect of peripheral stimuli and a consequent amnesia for the interval of narcosis. Gratifying results were obtained in the psychoneurotic cases, and it was noted that prolonged narcosis, followed by psychotherapy, was frequently much more effective than when the latter was employed alone. The technique used is here explained and some illustrative cases given.

Such favourable results are recorded that prolonged narcosis has become established as a standard form of treatment at the Cardiff Mental Hospital. By their improved technique the toxic risks were reduced to negligible dimensions and the writers plead for a more extended trial in the hope that their findings may be confirmed.

C. S. R.

[188] **Sodium amytal as a means of obtaining contact in stuporous and incommunicative cases.**—P. L. Smith and D. K. Schwartz. *Psychiatric Quarterly*, 1934, **8**, 748.

Sodium amytal furnishes a method of obtaining contact with some stuporous cases of the functional psychoses, and by this means data of the mental content may be obtained. The intravenous method produces a better result than the oral, and it was found that continued oral administration following intravenous injection did not result in producing as good contact as that obtained immediately after intravenous dosage. The use of a standardized dose does not give the best results. The dosage should be varied in accordance with the individual tolerance.

C. S. R.

[189] **The manganese treatment of schizophrenic disorders.**—R. G. Hoskins. *Jour. Nerv. Ment. Dis.*, 1934, **79**, 59.

Early investigations claimed success in the treatment of schizophrenic patients by manganese preparations. The present report refers to nine schizophrenic patients who were treated by manganese chloride by mouth over a period of several weeks without detectable influence upon the psychosis. Thirty were subjected to intramuscular injections of a colloidal preparation of manganese (0·32 per cent. mang.) over an average period of 49 days, with average total dosage of 227 c.cm. Several representative metabolic features were investigated at the beginning and at the conclusion of the medication. The results of this latter study were convincingly negative as regards both the clinical and the metabolic conditions of the patients.

These negative results suggest that beneficial effects claimed by certain earlier investigators may have been due to unintentional psychotherapy.

R. G. G.

[190] **Physiological and therapeutic actions of bulbocapnine in man** (Azione fisiologica e terapeutica della bulbocapnia nell'uomo).—O. Meco. *Riv. di pat. nerv. e ment.*, 1933, **42**, 706.

The author does not think that the catatonia produced by bulbocapnine has any relation to spontaneous catatonia in man. He thinks the former is a psychomotor torpor associated with certain phenomena of muscular tone. These factors as well as some in the psychic and mental fields are due to excitations or paralysis in the vegetative system produced by bulbocapnine, but these the author does not consider to be specific. The substance has no therapeutic efficacy whatever.

R. G. G.

[191] **Justifiable addiction and nerve-block.**—P. M. LICHTENSTEIN and M. B. GREENE. *Jour. Nerv. Ment. Dis.*, 1934, **79**, 534.

THE authors point out that sufferers from certain chronic and incurable painful conditions must be relieved of their pains, but that the use of narcotics often leaves the patient in a worse case than before because of the miseries of addiction. They claim that pain can be relieved and addiction avoided by the use of nerve-block induced by injection of 5 per cent. novocaine in 98 per cent. alcohol.

R. G. G.

[192] **Sodium evipan in psychiatric cases** (Die Anwendung von Evipan in der Psychiatrie).—W. KUNTNE. *Münch. med. Woch.*, 1934, **81**, 937.

VERY good results are reported with sodium evipan in cases of epileptic excitement. The author mentions details of the following case. A patient suffering from epileptic delirium fell asleep immediately after an intravenous injection of 5 c.cm. of evipan. An intramuscular injection of 10 c.cm. evipan given later caused the patient to remain quiet during the next five hours. He was transferred to a mental hospital without difficulty on the following day after an intravenous injection of 4 c.cm. evipan and an intramuscular injection of 6 c.cm. During previous attacks large doses of morphine-scopolamine had given no result in this case.

The author also had good results from evipan given as a sedative in many cases of acute excitement. In one case only did an untoward incident occur. After an intravenous injection of 2 c.cm. evipan, a schizophrenic girl developed shallow and slow respirations, but after an intramuscular injection of lobeline the breathing became normal. Evidently sodium evipan is an excellent remedy for states of acute excitement but it is not so useful as a prolonged sedative. Intramuscular injection of 10 c.cm. has a soothing effect after 15 to 20 minutes and its action lasts for several hours.

M.

Reviews and Notices of Books

La Psychose Paranoïque dans ses Rapports avec la Personnalité. By Dr. Jacques Lacon. Paris; E. Le François. 1934. Pp. 381. Price 50 fr.

This volume contains a very complete and elaborate study of paranoia. In an introduction the different theories regarding paranoia are reviewed from Kraepelin's time up to the present date. The author maintains that the most important factor for study is the mental reaction of the patient to his social environment and that the material obtained is of the greatest significance. One meets with an analogous method of approach in individual psychology and in sociology. In psychiatry the classic method of formal analysis is held to have shown its impotence. The method described by the author, termed 'concrete psychological analysis,' involves psychopathological monographs of an exhaustive and arduous type, as they must comprehend not only the study of the illness but also that of all biological relationships and of the social history of the subject. This work claims to be the first systematic example of this method, which is said to open new paths in the theory of psychoses.

The main problems the author sets out to answer are: Does paranoia consist in an inversion of the personality, developing along its own lines, or does it depend upon a constitutional anomaly or a reactionary mental distortion? Is the disease an idiopathic malady which remoulds the personality?

The analysis of paranoia is at present based on the symptom of delusions, and current views assign causative preponderance to a predisposing constitution. The elementary phenomena of paranoia—interpretations, passionate states, illusions of memory, disorders of perception, etc.—also occur in organic brain diseases. The supposed paranoiac constitution is, in fact, frequently absent or is secondary only to the delusions. The predisposition of the psychosis thus reveals itself as impossible to define in an unequivocal fashion in terms of character. The author demonstrates that it frequently presents itself in the form of the 'psychasthenic disposition' of Janet or the 'sensitive' of Kretschner.

The key to the problems of paranoia should be sought in a concrete psychological analysis applied to the development of the personality of the patient, that is, of events in his history, of the progress of his 'conscious,' and of his reactions to his social environment. On such a foundation, the author has differentiated a separate clinical type of paranoia termed 'paranoia of self-punishment.' The clinical value of this type is maintained by the

detailed symptomatology described and especially by the fact that it differs from all other forms of paranoia in that the prognosis is favourable.

The argument is followed that if in this type of paranoid psychosis, organic processes, although non-specific, play the part of an occasional cause (determined by the unfolding of the symptoms); if vital conflicts no more specific in themselves serve as an efficient cause (determined by the structure and permanence of symptoms), a third pathogenic factor should also be admitted as a *specific* cause of the psychotic reaction. This specific factor reveals itself as a definite anomaly of the personality, i.e. specifically definable in the concrete facts of the affective history of the patient, of his mental progress and of his social relationships. There is a global anomaly of the functions of the personality—an anomaly of evolution in that it translates an affective fixation to an infantile stage, where the ' sur-moi ' is formed by the assimilation to the personality of parental constraints or their substitutes. This fixation constitutes an arrest of evolution; the condition shows the erotic attributes of this infantile stage and one on which only the views of Freud yield information—ano-eroticism, sado-masochism, etc. The ' paranoia of self-punishment,' therefore, may be said to consist in an evolutionary arrest of the personality at an infantile stage (the stage of ' sur-moi ').

In an appendix appears an account of the general method—' concrete psychological analysis '—suggested by the author for the investigation of psychoses. It is a little doubtful if all would accept the ' paranoia of self-punishment ' as a true paranoia, but M. Lacon, at least, has done well to differentiate a type of paranoid reaction which appears to be amenable to treatment. The book will interest all psychiatrists as well as those interested in medicolegal and sociological problems.

Neuroanatomy. By J. H. Globus, M.D., Associate Professor of Neuropathology and Neuroanatomy, New York University. Sixth edition, revised and enlarged. With 89 illustrations. London: Baillière, Tindall and Cox. 1934. Pp. 240. Price 16s.

THE sixth edition of Dr. Globus's anatomical guide to the form and internal structure of brain and spinal cord constitutes in part a manual of dissection for the medical student, and is conceived on eminently practical lines. He can work alone with his material and with this book beside him; it contains a large number of outline drawings, without labels, in which he will be able to insert the names of the structures, thereby having them impressed on his memory. For the microscopic part a series of drawings are provided, in which he can identify the different nerve tissues at different levels. By a simple arrangement the plates containing the blank drawings can be removed individually for use in the dissecting-room or otherwise. Special attention is paid by the compiler of this book to the successive steps by which the material is utilized, with a view to conserving it as far as possible and not spoiling it for

later study by the manner in which it is cut up. His reason is that suitable material is difficult to obtain in quantity. The text contains concise and readable descriptions of the parts concerned, as seen naked-eye and under the microscope.

Mental Hygiene in the Community. By Clara Bassett. New York: The MacMillan Company. 1934. Pp. 394. Price 15s. net.

THE writer aims at presenting in as brief a form as possible a panoramic sketch of the various ways in which mental hygiene may be of importance and value. It is stated that the book is designed for those individuals, committees and communities who are interested in organizing and improving facilities for the study and treatment of mental disorders and in developing a broad programme for the promotion of mental health. As the author herself states, no attempt has been made to produce new material on any of the problems discussed. The subject is well presented and written. An index, which should prove useful, is included.

Mental hygiene is a subject the boundaries of which are well-nigh impossible to limit. For this reason it is difficult to avoid a certain diffuseness which may tend to discourage many of those individuals whom such a book is designed to stimulate. It is possible that this difficulty could be partly overcome by the inclusion of a number of convincing case-histories.

Adjustment of Muscular Habits. By Lieut.-Colonel J. K. McConnel, D.S.O., M.C. With a Foreword by Professor W. E. le Gros Clark, F.R.C.S. London: H. K. Lewis. 1934. Pp. 128. Price 4s. 6d.

THIS small book will be of interest to a large variety of medical readers, perhaps particularly to neurologists and psychologists. The author has, in addition to describing a practicable and effective method of physiotherapy, raised many questions of anatomical and physiological interest and has shown much shrewdness and erudition in discussing them. Stress is laid on the extent to which variations in posture are conditioned by psychological factors, and to which a faulty habit or posture is incorporated in the personality of an individual. The keynote of the author's therapeutic technique is the recognition of this interrelation, and the correction of faulty postures is attained by demonstrating and explaining the defect in muscle balance, and establishing more desirable motor actions as responses to stimuli which the individual has learnt to recognize. Mere repetition of correct movements, as in drill, is less effective and evokes more resistance in the mind of the patient. The descriptions of the author's technique are illustrated by diagrams which add greatly to their clarity. A valuable and attractive little book, which will well repay study.

Modern Clinical Psychiatry. By Arthur P. Noyes, Superintendent of the State Hospital for Mental Diseases, Howard, Rhode Island. Philadelphia and London: W. B. Saunders Company. 1934. Pp. 485. Price 20s.

In the main this is a reproduction in book form of material that has been given as lectures by Dr. Noyes to senior medical students. The author's aim has been to take all the integrated facts of biology into consideration and construct his psychiatric conceptions in psychobiological terms, that is, in terms of total integration of the organism. The more important ways in which anatomy, physiology and chemistry, through their respective pathologies, may produce changes in the organism and contribute to personality disorders are duly recognized and noted, but it is the psychopathological viewpoint that is thought of greatest value. In this realm, however, there is much that at present must be regarded as hypothetical or even speculative. Throughout the book the genetic-dynamic trend is stressed.

Preliminary chapters on the purpose and development of mind, psychic energy and dynamics of behaviour, mental mechanisms and motives, psychobiological constitution, etc., make excellent reading and are well calculated to prepare the student for an intelligent understanding of the clinical types which are later described and briefly illustrated with cases. Each chapter ends usefully with bibliographical references.

It may be confidently said that no better text-book could be placed in a student's hands. The style is clear; the subject-matter is comprehensive, up to date and excellently presented.

Experimentelle und klinischen Studien zur Physiologie und Pathologie der Pupillenbewegungen. By Dr. O. Löwenstein and Dr. A. Westphal, Bonn. With 101 illustrations. Berlin: S. Karger. 1934. Pp. 181. Price M.18.

By means of an elaborate apparatus, with cinematographic attachment, Dr. Löwenstein and Dr. Westphal have been able to study the movements of the pupil in health and disease under favourable conditions, and have added to knowledge in regard thereto. They distinguish four types of normal reaction to light: (1) the pupil contracts and dilates again quickly and promptly in both phases with more or less equality; (2) it contracts quickly but dilates again slowly; (3) it contracts slowly but dilates rapidly; (4) both contraction and dilatation are slow. In normal persons they have noted that these four types occur indifferently, in the sense that about as many of one group as of any of the others have been discovered; in schizophrenics, however, the partition is entirely different, since type 1 is found in only 3 per cent., types 2 and 3 rather less seldom, but type 4 in more than 90 per cent. This remarkable fact, if corroborated, may be of distinctive value, for in manic-depressive psychosis type 1 is commonest, types 2 and 3 less so, and type 4

rarest. Since sluggish pupils characterize some postencephalitic and other extrapyramidal affections, according to evidence here adduced, the conclusion that schizophrenia is based in part on disorder of striatal function is adumbrated. Many other matters of interest are also investigated, for instance, the question of dilatation of the pupil with pain, fear, alarm, etc., and the reaction of such dilated pupils to light; the problem of pupil unrest, hippus, and others.

Recherches sur la Somatotopie Sensitive dans le Thalamus des Singes. By Dr. O. Sager, Bucarest. Harlem: De Erven F. Bohn. 1934. Pp. 139. Price not stated.

THIS is a valuable contribution to the question whether different parts of the soma are represented locally in the optic thalamus, and is based on numerous experiments on apes. At the same time the opportunity was taken to ascertain what connexions exist between different thalamic nuclei and different parts of the cerebral cortex. Among the conclusions specified are the following: the lateral nuclei of the thalamus are projected on to the frontal gyri and precentral convolution, while the ventral are related to the sensory cortical zone. In both sets of nuclei some somatotopic localization can be traced in three directions—frontal, sagittal, and transverse. On the frontal plane there is the same arrangement as in the precentral gyrus, viz. leg, arm, and face; certain modifications are noted in regard to the other two planes. Three variants of the thalamic syndrome have been distinguished, as follows: (1) if the lesion depends on occlusion of the thalamogeniculate artery, sensibility is chiefly affected, in arm more than leg, the face being spared; (2) if on occlusion of the 'thalamoperforée' vessel (for the semilunar nucleus of Flechsig and the central nucleus of Luys) the face is chiefly involved, arm less, and leg not at all; (3) if the lesion concerns the field of the lenticulo-optic artery (lateral nucleus) pain is much the most prominent symptom, referable chiefly to the leg, and it has the character of a neurosympathetic disorder.

Exploring the Unconscious. By Georg Groddeck, translated by M. Collins. London: C. W. Daniel and Co. 1934. Pp. 224. Price 7s. 6d.

IF all Dr. Groddeck's writings are as absorbing and thought-provoking as the selection in this book, then it may be hoped M. Collins will translate the whole of them and give them a more suitable title.

Groddeck was one of the first to present certain present-day views of the close interrelation of body and mind. Inevitably he took an interest in massage and used it as an aid to treatment. He holds that every physical event contains an expression of unconscious happenings in the 'body-mind,' which he divides into parts corresponding to body regions. Disturbances of function indicate mental conflicts; thus respiratory irregularities can arise through a struggle between the primitive 'belly-mind' and the more culti-

vated 'head-mind.' Similarly, resistance to treatment can be expressed as constipation or diarrhœa. The forces directing the mind and body of man he calls 'It,' which is unknowable and, for each individual, omnipotent; illness being due, not to repression or to the failure of repression, but to the intention of the 'It' to become ill. So far as one can gather from the rough idea given in this book, the unconscious is part of the psyche and the psyche is part of the 'It,' the working of which is life; whereas in Freud's terminology the id, super-ego, and part of the ego are included in the term unconscious. The part called the id seems to include the forces Groddeck calls 'It' and the working of the id is life and death.

There are also essays on unconscious expression in music, speech, painting and literature—enough to give one an appetite for more Groddeck and an interest in his views and theory.

Weitere Beiträge zur Pathologie der traumatischen Gehirnblutungen. By Dr. O. Berner, Oslo. With 88 illustrations. Oslo: Jacob Dybwad. 1934. Pp. 105. Price not stated.

In a large number of cases of death after head injury Dr. Berner has found hæmorrhages on the floor of the fourth ventricle—in fact, he goes so far as to state that they are virtually constant. Sometimes big enough to be seen by the naked eye, they occupy a characteristic site, viz. anterior to the striæ acusticæ, in the immediate neighbourhood of the sulcus longitudinalis, and also often at the angle between the crura cerebri. On transverse section at the upper end of the ventricle, at the aqueduct, they are found invariably ventral to the latter, never dorsal. He believes they result from diapedesis. Occasionally the effusions are purely microscopic in dimension, and when so they lie close to the sulcus medialis, or on the floor at the lateral recess. Cases of death consecutive to commotio cerebralis are probably due to lesions of the kind, a view surmised by Duret many years ago.

What of the Child? By Andrew Kefalas, M.A., M.B., Ch.B. London: William Heinemann (Medical Books) Ltd. 1934. Pp. 187. Price 5s.

This book deals popularly with the problems of child-rearing, and is addressed to parents and teachers. On the whole, the treatment of the subject is adequate and the purpose which the writer had in view is fairly achieved. We should be inclined to take exception to some of the author's expressions, which tend to create an unsatisfactory approach to the particular discussion involved. It is said, for example, that children who howl over the slightest little mishap are 'nasty little creatures'; 'nasty' things happen through children's curiosity; those who frighten children are 'beasts and villains.' Such epithets are not necessarily true and only tend to alienate the intelligent reader. It is debatable whether in disciplinary action prompt corporal punishment is an ideal way of meeting the situation, and the statement that

no lie in a child should ever escape smart punishment requires a good deal of qualification. Though infantile masturbation is mentioned, this problem is neglected when adolescence is reviewed. With these and other reservations the book should prove a rational and useful guide to those who have the welfare of children at heart.

Mental Deficiency Nursing (Simplified). By O. P. Napier Pearn, M.R.C.S., L.R.C.P., D.P.M. London: Baillière, Tindall and Cox. 1934. Pp. 281. Price 5s. 4d.

THE author has intended this volume to be a simpler presentation of the *Nurses' Manual for Mental Deficiency.*" The general arrangement of the latter book is closely followed, and, although the method may be helpful to candidates preparing for examinations, the faults of the larger book are repeated in this one.

The manner of presentation is brief and condensed; tabulated lists and mnemonics are freely used as an aid to learning. Those nurses for whom the book is intended will find it extremely useful.

Adolescence and Marriage: A Survey of Sex in Modern Life. By Robert V. Storer, M.R.C.S., L.R.C.P., with 8 illustrations. London: John Lane, The Bodley Head Ltd. 1934. Pp. 325. Price 8s. 6d.

THAT sex instruction, if only presented in the right way, is of vital need, goes without saying, and this work, specifically written for the enlightenment of parents, present and potential, constitutes a useful monograph on the subject. It deals with the question from every angle, historically, ethically, physiologically, psychologically, and lastly from a practical standpoint. The writer proves himself well qualified to tackle the manifold problems involved, and here they are handled in such a manner that they cannot fail to be understood. The chapter on modern methods of contraception will prove of value. The book should appeal to a wide public and can be thoroughly commended.

A Guide of Lunacy Practice. By G. Grossman, B.A., and John J. Wontner. London: Sir Isaac Pitman & Sons Ltd. 1934. Pp. 151. Price 10s. 6d. net.

THIS small volume concerns the practice of the Management and Administration Department of the High Court under the Lunacy Acts, 1890 to 1922. In view of the important changes that have taken place in what was formerly known as the Office of the Master in Lunacy and the annulling of the existing Rules in Lunacy, we have here a valuable reference work. It is, however, almost entirely of interest to solicitors, though in special circumstances medical men can find within these pages some details of information of which they may be in need.

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